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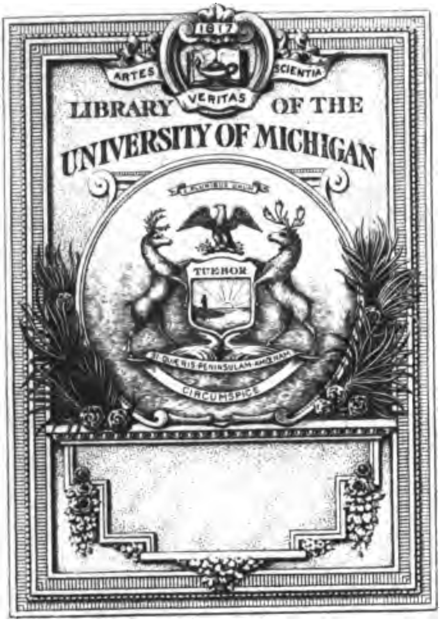

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HUSBANDRY.

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All which are calculated both for Profit and Amuſement of the Country Gentleman and Farmer.

By C. VARLEY, Eſq;

IN THREE VOLUMES.

VOLUME II.

YORK:
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A New SYSTEM OF HUSBANDRY.

CHAP. I.

Some remarks between the old broad-caſt husbandry, and the author's new mathematical husbandry, by which corn ſeeds or plants may be ſet at a regular given diſtance, with his new-invented machine, &c. &c.

BY peruſing the following ſheets, my reader will ſee ſome intereſting advantages ariſe, peculiar to this new method of ſowing or tranſplanting at a regular given diſtance, or depth in the ground, each grain or plant in proportion to the richneſs or quality of the ground.

And as the ſaving ſeed and labour (in order to keep down the expence) ought to be the farmer's grand point in view, I ſhall ſubmit to his own impartial judgment the reaſonableneſs of the following argument, which is grounded upon experience.

I always made it my chief ſtudy, to eaſe the farmer from tedious labour, and expenſive perplexing methods, as I am ſenſible there is no merit in writing, or pointing out expenſive ones.

A gentleman, with the ſtrength of men and money, may almoſt do any thing; but what I ſtrive for, is to ſupply the poor man with ingenuity and forecaſt, in order to be an equivalent for ſuch powerful arguments.

There is not one part in my work that ſavours of expence above its merit in profit; ſome places indeed may ſeem eaſy and ſimple, which may perhaps (though the more valuable) be the very reaſon why ſome flaſhy prodigal gentlemen may not like it ſo well, as if more perplexed or expenſive.

As to food neceſſary for the vegetating of plants, I hope every candid reader will allow, that every ſpecies of ground differs both in quantity, quality, and ſort of ſalts, peculiar to each kind of plant to feed upon according to its nature; which ſhews the neceſſity there is to proportion the ground thereto, according to ſuch richneſs, and which cannot be done to perfection, except by a mathematical rule.

I have often heard unthinking men ſay, Give the land ſeed enough, it is rich enough to bear it; which was the only method they could take to deſtroy their crop; becauſe, in ſuch land, there may be ſubſtance enough to throw up three times more crop than the ſurface could bear, as each ſtalk or ear requires a proper diſtance to admit the circulation of air around it, which is neceſſary to keep it in health and vigour, in order to raiſe a ſound, large, healthy grain, and prevent a malady peculiar to a crouded crop, namely, mildew; which is morally impoſſible to guard againſt, as long as we follow the preſent irregular method of throwing ſeed into the ground at random: for ſuppoſe a man knew, both by reaſon and experience, how many grains of wheat would ſow an acre, or any given quantity of land, and be at the pains to count ſuch a number, and take them in his hand and throw thereon, in the moſt careful manner he could deviſe; is it poſſible they would fall at a regular diſtance from each other? would not ſome be too near together, and other parts of the land be unſeeded?

This is the reaſon ſo much ſeed is

thrown away; and it was always looked upon by every writer, as a thing impracticable, to place each grain at a given regular diſtance from each other, in the diagonal broad-caſt method, to come within any reaſonable degree of expence, and much more to remove corn-plants: but if, by the new-invented machine, theſe obſtacles are removed, then grain can be ſown with a ſmall expence, and with a mathematical certainty.

The next great point for a farmer to know, is, at what diſtance each plant ought to ſtand aſunder, according to the quality or richneſs of ſoil; and if he have one eye on the experiments hereafter mentioned, and the other on his land, it is almoſt impoſſible his crop can miſcarry, if he keeps up to the rules laid down; becauſe every grain is placed in one latitude, both as to the perpendicular and horizontal direction; therefore, by the ſame rule that one will come to perfection, they all muſt that eſcape vermin; and this I have alſo guarded againſt, as may appear in its proper place.

The practiſers in drill-huſbandry experience the benefit corn receives from a mathematical ſyſtem, as it is healthy, ſound and bold, and alſo exempted from the caſualties that are attendants on the old broad-caſt method, namely, blights, mildews, and ſmallneſs of the grain, &c. which is moſtly occaſioned by the over-rankneſs of the crop, ſo that it lodges, and what is moſt diſtreſſing, it is generally the beſt land that meets with ſuch diſaſters.

Indeed the drill-huſbandry can only be called half a mathematical ſyſtem, becauſe by it we only aſcertain the diſtance between the drills, as in the lengthwiſe of the drills corn falls confuſedly irregular, and each grain almoſt at touching; therefore though too much room one way, it is crouded another, ſo conſequently each grain loſes half its value; for were it at liberty to ſpread and feed five or ſix inches round, it would certainly produce double the quantity of ears and corn.

I have often ſeen a drill corn-crop lowered in its value, by being ſown too thick; therefore it is very clear, that ſowing corn by a mathematical ſyſtem in the centre of each given diſtance, muſt be abundantly more certain of a crop; and the great ſaving of ſeed and labour adds ſtill to its value.

But they that follow this new husbandry of ſowing or tranſplanting corn regularly thin with the machine, as directed in the following chapter, muſt bear in mind two particulars; firſt, that his land be well tilled, and kept clear of weeds, or they will deſtroy his ſcheme, by preventing his corn ſtooling or branching.

In this caſe trench-ploughing will be particularly uſeful, as without hoeing or any labour, it is ſure to be clean from weeds; and as the ſoil is wrought to a deep ſtaple, it will alſo add to the plants ſtooling.

The next is, the corn muſt be ſown earlier than common, becauſe it has (if tranſplanted) twice to vegitate, firſt from the ſeed, and again after tranſplanting; for upon a plant's being removed, it dies before it lives again, therefore admits of perhaps near a fortnight's delay.

Likewiſe when corn is ſown thin, ſo as to admit of ſtooling (if it be not removed), it may be ſaid to vegetate twice, firſt from the corn, and again when it is weaned from the kernel; for at this time it has to force from the root new ſhoots or ſtooling branches, therefore admits of near a fortnight's delay in its growth, by making the additional ſhoots, in order to fill the ground deſigned for that purpoſe.

As ſome of my readers may be at a loſs to know what I mean by corn being weaned from the kernel, it may not be amiſs to explain it.

Corn in its dry ſtate, before it is committed to the earth, is a dead inactive body, but immediately after it attracts or imbibes the moiſture thereof, which ferments, ſwells, and raiſes it to life and action, by firſt forcing out the root from the thickeſt or eye end, and the top from the ſmalleſt end; if the ground be moiſt ſo as to ſupply it with ſufficient juices, it will break the skin in about five days, and the root will divide itſelf into many ſmall fibres, which are as ſo many mouths to feed the blade.

Nature has directed them to ſearch equally round for food, for they ſpread their branches horizontally, inclining downwards; as ſoon as theſe are united, or begin to feed upon the earth, then nature ariſes upwards, and forces out the top in an upright direction (and a ſingle blade) to about three inches high; all this time (which takes up about fourteen days) it is feeding from the floury or mealy part; but as ſoon as that is exhauſted, the blade (which from the beginning had a joint or parting, though it did not appear) divides into two parts, and falls flat upon the earth, at each ſide of the root.

At this criſis, the corn is vulgarly called weaned from the kernel; and I make uſe of the word in ſeveral places, in order to be underſtood; but however, the word is wrong adapted; for the floury or mealy particles are the kernel, and that being grown into root and top, cannot be weaned from itſelf: in ſhort it is weaned from nothing it aforetime had any connection with but the skin or husk; and this it leaves in a perpendicular direction, reſembling a blown egg, which will abide there a long time before it rots or melts away, which (as I have taken notice under the article of ſmutty-wheat) proves very plain how eſſential a nauſeous ſtinking pickle may be to candy or coat over the skin, in order to prevent grubs, or worms of any ſort, from wounding or preying upon the root, which certainly muſt weaken the plant, if not kill it outright.

CHAP. II.

The author's new-invented machine, and the number of grains and weight of ſeed-wheat neceſſary to ſow an Engliſh acre; with the tranſplanting machine, and what number of grains and buſhels of ſeed the ſaid acre will produce, with directions for ſowing and tranſplanting, &c.

I Hinted in the foregoing chapter, that when corn is ſown in this thin regular method, it requires an earlier ſeaſon than when ſown thick; becauſe it has a ſecond time to grow or vegetate into ſtooling-branches; and if the plants be removed, they will be ſtagnated in the growing part about another week, as every thing of the vegetable creation, upon being taken out of the ground, dies before it lives again.

This makes it neceſſary to begin earlier by a fortnight or three weeks, to ſow your ſeed-bed than common. The beſt ſeaſon to ſow the ſeed (that you propoſe to tranſplant out) is in the laſt week of Auguſt; and that which is ſown, as hereafter directed, a ſingle grain to each ſquare foot, in the firſt week of September.

Ground moſt ſuitable for this purpoſe, is a deep rich loam, clay, warp, or haſle earth; ſuch muſt be ſown or tranſplanted at one grain to each foot.

Fallow-land is beſt, except ſuch as is trench-ploughed, though clover, peas or beans, ſtubble, turnip, fallow, rape-ſtubble, potatoe-ground, or any land that can be depended upon for a wheat-crop, in any other method, will bring a crop with much more certainty in this; except the ground be dirty or given to weeds: in this caſe, the remedy is to trench-plough as directed in the firſt volume, or fallow the ground all winter, and have your plants growing in a ſeed-bed; by this you take the advantage of a proper ſeaſon to ſow your ſeed, and the plants are growing at the ſame time you are enriching your land, deſtroying the weeds, &c.

The plants will be pretty ſtrong by the firſt week in February, therefore being placed in the ground immediately after the laſt ploughing, they will be able to ſpread over, and fill the ground before the weeds can take root, ſo conſequently will ſuppreſs and effectually deſtroy them; but the very firſt favourable time for removing the plants in February, muſt not be miſſed.

This method of husbandry is ſimple and eaſily learned; all you have to do is, to fix the machine as directed in the cut; and for ſowing the ſeed, fix the pins as they will ſink, or make the holes two inches deep (but the holes that are to receive the plants muſt be three inches deep); this is all the machine wants to be altered in, between ſowing or ſetting the plants, provided the ground be all of a richneſs; but as the ground grows worſe in quality or richneſs, the plants will require to ſtand nearer together, at nine or ſix inches diſtance, according to the ſtate or ſtaple of the ground, becauſe the plants will not ſpread or branch ſo much in thin gravelly, or ſandy land, as they will in the above-deſcribed rich deep loams; neither are the above lands ſo proper for wheat; they ſhould be ſuited with ſuch crops as are natural to them, as oats, barley, rye, turnips, clover, or ſome ſort of pulſe; but even ſuch weak land will force out branches according to the condition it is in for richneſs.

Therefore it will anſwer nearly the ſame end, and ſave a good deal of labour, if inſtead of altering the pegs in the machine, to hole at nine or ſix inches aſunder, you make your holes at twelve inches aſunder in all ſorts of land, and add ſo many grains in each hole as your land lowers in value, or ſtate of richneſs; as for inſtance, in rich clay, loam, or warp land, put one grain in each hole; in haſle-earth or a loamy ſand, put two grains in each hole; in a ſtrong ſhallow gravel, drop three grains in each hole; and in a ſand, four grains in a hole.

Seed thus placed will be able to find out all the nouriſhment within ſix inches round; and when ſown in the centre of a ſquare foot, they have no further to go: and as they ſtand thus regular, if you ſee encroaching enemies of weeds, graſs, &c. you may hoe between them. Two men will hoe an acre in a day; for the moſt delay to all hoers, is in looking out the ſtrongeſt plants, and the proper diſtances; but this is all provided againſt when ſown thus regular.

Have regard as much as conſiſts with your ſituation, to remove your plants from worſe to better land, which will encourage their growing or branching much more than to tranſplant from good to bad land. I need not refine upon this point more than to ſay, it would as ill agree with their conſtitution, as that of a high-fed perſon, falling from a full-ſpread table, to feed upon potatoes, and butter-milk: this obſervation ought to be carried through the whole courſe of husbandry; that is, always for a farmer to take his cattle and ſeed from worſe land to better.

The beſt way is for a farmer to divide his work thus, that is, to ſow one half of his wheat, and tranſplant the other; and to raiſe his plants as follows, viz. Sow juſt double the quantity of ſeed in each hole as he intends to ſtay there, and when the ground is ready, pull up half the plants for tranſplanting, and leave the other half in the ground, by which he will do double the work with the ſame people, and go on by a regular mathematical rule which cannot err; as his own reaſon muſt tell him, that by the ſame rule one grain in a field will grow, they all muſt that are ſound (and if he ſwim his ſeed, the unſound grain may be taken off); as they lie in the ſame ſituation or latitude, not one being the tenth of an inch deeper in the ground, or covered with more mold than another; and as they lie in the centre of every ſquare foot, if the land in a field be all of one quality or degree of richneſs, by the ſame rule that one foot will produce thirty ears from a grain, every one muſt, or thereabouts.

Another advantage is, that a farmer can manure his ground at a cheap rate, and at the ſame time be ſure that every grain feeds equally upon it, becauſe he may drop an equal quantity into each hole along with the ſeed, as directed under the title of the compound manures.

He alſo feeds his land and grain, by

the thick coat of manure he wraps round his grain by candying it, as directed in the receipt of liquid manure. Thus he ſees that every ſtep he takes in this regular method, is valuable and intereſting; and a narrow underſtanding may go through with it, as every thing is ſo plain and ſimple.

The machine being fixed; he muſt have a ſober, gentle, tractable horſe, and a ſteady man to guide him ſtraight; and always come back in the track the marker makes going, for the marker is fixed ſo as to reach half-way into the following breadth.

The beſt way is to go acroſs the ridges, as it works in the nature of a roller; but in open town fields where ridges lie ſingle, he cannot, therefore he muſt keep lengthwiſe of his ridge, and make the machine, as it will agree with the breadth of the ridge, either to take it at two, three, or four times; a little foreſight and experience will help him in this.

One man and a horſe will hole four or five acres in one day with eaſe; each child will reach to drop ſeed or plants into three holes in its breadth, going up and down; and four children at about three-pence a day each, will finiſh an acre; but a man muſt follow them with a rake to cover the ſeed.

If it be plants he is tranſplanting, he muſt have a hoe, and draw the mold a little higher about the roots than in other places, that when the roller goes over it, it may bear harder upon the lumps, ſo as to ſettle firm the earth about them, and they muſt be rolled as ſoon as tranſplanted.

When the plants are taken up, a perſon muſt go with a three-pronged dung-fork, and run it down to lighten the earth, and children muſt be ready to draw up the plants, without breaking the roots.

The fork need only be uſed where the land is ſtrong, ſad, or ſtubborn; land of a lighter, looſer ſtaple, is moſt proper for a ſeed-bed, and which will ſave ſome trouble.

Any ſort of grain, graſs, or ſeeds (flax-ſeed excepted) may be ſown thus; but ſmall ſeeds may deceive you as to their vegetating principles, eaſier than corn.

Therefore it is adviſeable to try them; the quickeſt and ſureſt way to do this is, to lap a few grains up in a woollen cloth, and dip it in water, then put it into a couch of malt in its growing ſtate, and every grain in the cloth will vegetate, if it has not loſt its growing quality; and according to the quantity that grows, judge therefrom by dropping more or leſs into each hole.

One grain in every ſquare foot, if good, is enough of theſe articles, viz. turnip, rape, cabbage, turnip-cabbage, cole-ſeed, burnet, lucern, or clover; but for fear of accidents, you may drop two if good, and three or four, as you ſee need requires, if bad; it is better to have too many than none; but they are recoverable either way, by planting in miſſed places, or by thinning where over thick, however the latter is the quickeſt; for being ſo regularly placed, three weeders will draw up the ſuperfluous plants in a day from an acre.

I am not ſo much a ſtranger to the nature of man, but I know very well what the moſt illiterate and bigotted ſort of them will ſay upon reading this ſubject. I know the taunts, jeers, and criticiſms they will throw out, however I would have them to ſuſpend their judgment thereon till they try it, neither would I deſire them to run much hazard on the firſt trial, becauſe half an acre, or an acre in the middle of a field, will ſhew what might be expected from any larger quantity, and ſo they may enlarge their trials, as they ſee they anſwer.

A Table ſhewing the expence and profit of an Engliſh acre of wheat, ſown or tranſplanted in the new regular, diagonal method, with the tranſplanting machine.

	l.	s.	d.
To the rent of the land for two years, ſuppoſing fallow	1	10	0
To ten ploughings with one man and two horſes, at 2s. and 6d. per - - - -	1	5	0
To four children to drop the ſeed, at 3d. per -	0	1	0
To one man to cover it after them - - -	0	1	0
To holing the land -	0	0	4
To the compound, about	0	1	0
To 43,560 grains of wheat, weight about 4½ pounds, and ½ an ounce - -	0	0	4
To levelling with the harrow before ſowing - -	0	0	6
To rolling - -	0	0	6
	2	19	8

Brought over	2	19	8
To harveſting - -	0	10	0
To tithe - - -	0	5	0
Total expence	3	14	8
Produce 42 buſhels of ſeed, at 5s. each - -	10	10	0
Clear profit	6	15	4

Straw pays for threſhing.

N. B. If the land be trench-ploughed it will ſave four ploughings at leaſt -	0	10	0
And alſo a years rent -	0	15	0
So that in this caſe, the clear profit will be -	8	0	4

In order to ſupport the foregoing method of tranſplanting and thin ſowing, amongſt many other experiments, the following chapter was tried by myſelf very minutely in 1764.

CHAP. III.

Experiments made in 1764 by the author, to find out the true diſtance or quantity of land that wheat ought to have to grow upon.

IN 1764, I finiſhed making my machine that harrows, ſows, and rolls at one time; and as it will ſow any quantity of grain on an acre the broad-caſt way, I was reſolved to make a trial in the method of ſowing wheat thin on the ground, it being always my opinion, that a great deal of ſeed was loſt or thrown away by the old method.

However, I was in ſome degree diſappointed in the ſeaſon, becauſe it was the firſt week in February before I finiſhed my machine, therefore out of wheat-ſeed-time; but being full of the thing, I was reſolved, though late it was, to try with a little.

And to make my experiment good, I fixed upon the middle of a fifteen acre field, which had three different ſorts of land in the length of the ridge, which was forty perch long; one end of the field lay low, the ſoil was a ſtrong, loamy clay; the middle was a high hill; the ſoil at top was a kind of a clay gravel, very ſhallow, and mixed with a middle-ſized paving ſtone.

The other end was not ſo low as the firſt; neither was it ſo ſtrong a clay, but was what we call a loamy ſand: upon the whole, it was very good wheat-earth, but the bottom of the field was rather more ſo; the top of the hill was more proper for barley than wheat.

This field had been much wore by long tillage, and was much inclined to weeds; the laſt crop which was oats, was only indifferent, and full of weeds: but in order to recover the land, and kill the weeds, it had been fallowed two years, in which time it had got only ſeven ploughings; which if I had had the management earlier, as I had not, it ſhould have had at leaſt twice as many; but it only came into my hands the Michaelmas before; though upon the whole, it was in good order, and by far a better fallow than the common run: I gave it a thin top-dreſſing, of wet turf-aſhes, for I had no other, and harrowed them in with the ſeed.

I meaſured two ridges very exactly, and on the fifteenth of February I ſowed fourteen ounces on one ridge, which, according to the meaſurement of the ridge, was at the rate of ten pounds to the acre; on the other ridge I ſowed twenty-eight ounces, which, according to meaſurement, was at the rate of twenty pounds to the acre.

The ground was very wet, and the horſes ſunk as far as the plough went; however, the ſeed was not trod in, becauſe it was ſown between the harrow and the horſes feet; but the harrow could not come over it the ſecond time, without making the ground in mortar, ſo that it was only harrowed once in a place; therefore I am clear more than half the ſeed lay bare, or uncovered; but as the ground and weather was wet, it ſoon vegetated, ſo that (except what fowls got, which I believe was not much) it all grew.

Though the machine ſowed the grain pretty even, yet as the land was rough from the plough, it tumbled into holes; and as the earth clogged or ſtuck to the harrow, it dragged ſome on heaps: but however, all this afforded me a better opportunity of proving my experiments for a future event; as if each grain had been placed at a regular diſtance, they would have lain within about ſix or ſeven inches of each other; therefore I could not have had an opportunity to know how they would grow at the diſtance of nine, twelve, eighteen or twenty inches; but as they fell by chance, and irregular, it afforded me matter for ſpeculation in this caſe, and as the ſeed was not covered with a rake, or hoed, or nurſed, in any degree, it made me thorough maſter of the ſubject; and a fairer trial never could be made, for I ſowed the reſt of the field with barley and clover, and I ſowed this wheat alſo with clover at the ſame time, namely, about the tenth of May, and rolled it acroſs, along with the reſt of the field, gathered the ſtones, and carried them off in a tumbrel or box, fixed (as I always do) upon the frame of the roller.

About ten days after the ſeed was ſown, it began to ſhew itſelf above the ground; from this to the time it had done ſtooling or branching, I ſeldom miſſed a day without a viſit to it, ſo that I cloſely obſerved all its ſtages, ſituations, or motions.

I meaſured and noted every diſtance I could diſtinguiſh any alteration in the plant, and found that, in general, where a plant had the moſt room, it made the moſt ſhoots from the root, particularly in the good ground, till it came to the diſtance of about eighteen inches, that is, about nine inches each way; if they ſtood thinner than this, it made no great difference, becauſe the blades not being above nine inches long, they did not meet with their neighbour to obſtruct each other in ſpreading.

For the nature of a plant of wheat is ſuch, that it grows perpendicular till it is weaned from the kernel, that is, till the flour of the corn have all grown into top and root; for it divides each way, and leaves the chaff or husk in the middle, ſtanding perpendicular at the ſurface of the earth, reſembling a blown egg-ſhell.

As ſoon as all the inſide or flour is exhauſted, that the blade or top has nothing to depend upon for nouriſhment but the earth, the two blades open, and fall flat on the ground at the two oppoſite ſides of the root; then as faſt as the root gathers ſtrength, it throws or forces out more plants round it, till it forms a figure like a ſtar, or an open full-blown marygold; and thus the blades keep growing, and creeping along the earth, till they meet with ſome living obſtruction, as graſs, weeds, or corn; immediately then they raiſe up the points of their graſſy blades, and give over ſtooling; and what is very extraordinary, though there ſhould be more room at one ſide of the root than the other, yet they all bear as it were harmony, and concur with each other, as if they were ſenſible of an affront put upon them by an encroaching enemy; therefore, I ſay, when one blade is obſtructed, that root generally gives over ſtooling, and riſes to a perpendicular direction.

In rich, clean, good, well-tilled land, a plant of wheat may ſtool to fill eighteen inches ſquare; yet I choſe to fix my ſtandard to one foot ſquare in good land, as that will bring forth to maturity, from twenty to thirty ears, which I found to be as many as had ſufficient room to grow out of one root; I ſay, one foot ſquare will bring thirty ears to full maturity from one root; but were theſe thirty ears to have thirty roots, in the ſame ſpace of land, they certainly would fall down, and what we call root-welt; but if they ſtood, the ears and grain in them would be ſmall and good for little: this I have accounted for in another place.

As I obſerved, the blades of a good ſtooling-plant fall, ſpread and creep along the ground; but if it be crouded when young, it throws up a perpendicular leader or ſtraw, from the middle of the root; and though it be thinned afterwards, yet it never changes the firſt bad ſet it gets; but this perpendicular leader takes up all the crown, and ſubſtance of the root; it is true, upon being thinned, it will throw out more ſhoots round about, but they will be ſmall, and good for little; and a ſtooling-root of wheat is not good, except the ears be near of an equal ſize; though I had ſome ears that were only about three inches long, yet moſt of the good ſtooling roots had not an ear but what was from five to ſix inches long, for they were nearly all of one ſize.

I cut ſome of the leaders off from thoſe plants that were likely to be bad ſtoolers, and I found that this was the remedy to make them ſtool well: therefore it is a good thing to turn ſheep in for that purpoſe, after weeding or thinning, which would make them ſtool amain. But the beſt method that could be taken with a crop of wheat ſown in the old or new method, would be to hoe it.

I had ſome roots that produced upwards of fifteen hundred fold, having from twenty to thirty ears at a root; but this was all in the good land, at the loweſt end of the field, which was moſt inclined to clay; the wheat at the other end, that was inclined to a ſandy loam, ſtooled full as well, but the corn in the ears was not ſo plump or large, neither were the ears ſo long or well ſet, but ſloamy; and the chaſes ſtood thin and wide, ſo conſequently could not produce in the ſame length of ears ſo many grains.

As to the middle of the land, which was a high gravelly hill, and a ſhallow ſoil, it was hard to find above fifteen ſtalks or ears from one root; however the ears, though not quite ſo long, yet they produced as much real ſubſtance as the beſt, for they were thick and well ſet, with a large bold grain.

This was all from the ridge that was ſown the thinneſt, at the rate of ten pounds to the acre.

As to the ridge which was ſown at the rate of twenty pounds to the acre, it was impoſſible to find a root with above ſeventeen ears at it, in the beſt part of the land, and ſo in proportion in other parts: this was the moſt convincing thing of all to the reapers and by-ſtanders, who were all helping to ſeek, and they found more on the thin ſown ridge at thirty ears and upwards to one root, than on the other ridge at ſeventeen ears to a root.

This gave me ſo great an inſight, that I think, I would not have miſſed ſowing the ridges with two different quantities of ſeed as above, for fifty pounds; for it did not only convince me, but it convinced thoſe by-ſtanders, who were the moſt averſe to thin ſowing, and who uſed frequently to caſt up to me in their old cant-word, that if I did not ſow, I could not reap.

My field lay along by a high road-ſide, and was the ſubject of many a taunting joke to the travellers, which I have often heard when I was at the inſide of the hedge, unknown to them; particularly one day, two farmers were going by, and one ſaid to the other, "See, Paddy, where "the Engliſhman is ſeeking for a plant of "wheat;" (for I was counting how many ſtalks grew out from one root). "Yes," ſays the other," but he will not find many "without his ſpectacles," anſwered Paddy, "If they have no better crops in England "than that will be, they muſt be obliged "to have relief from poor old Ireland, as "well for bread as beef, or they could "not be able to beat the French."

Indeed my wheat at that time cut a poor figure to a traveller; for the land was a little rough, and the plants were flat on the ground, ſo that a perſon on the road could ſcarce ſee any appearance of corn, till about the middle of April; then it began to cock up its head, and by the fifteenth of May, it had covered the ground, and was a full flouriſhing crop; then people wondered where it came from; ſome would have it, that I had ſowed the land over again; others reported, that I filled the ground by taking it out of other fields, and tranſplanting it there.

Thus various reports were ſpread; however, at harveſt, when they ſaw the many ears from one root, and the length of the ears, &c. they were obliged to let their falſe reports vaniſh. But their malice did not end here, for a few days before it was reaped, ſome one went up and down each ridge, and cut off a great many of the largeſt ears.

This vexed me greatly; however, after all, I had fifty-three ſtone five pounds of the fineſt wheat I ever in my life ſaw. Every ſheaf yeilded a ſtone or upwards, but the ſheaves were made large; the produce was at the rate of about twelve barrels to an Iriſh acre, which is near equal to thirty-two buſhels to an Engliſh one.

I picked as many ſtalks which had the ears cut off as made two large ſheaves; this was in order to give as near a gueſs to the crop as poſſible; but doubtleſs a great many eſcaped me, and perhaps ſome were broke off from the root in cutting, theſe I could ſee nothing of.

The crop was late before it was ready to reap, it was the latter end of October; it happened to be a fine dry time, or it is a doubt to me, if it had been wet, if it would have ripened well at all; for it was ſown too late, and was ſtill put back by having to branch out.

I muſt not forget to obſerve, that I did not pickle, wet, or lime my ſeed at all; for it was the firſt time I had tried my machine, therefore was afraid that if I wet the corn, ſo ſmall a quantity would not run and ſpread ſo even out of the hopper, as the orifices were obliged to be ſo very ſmall to diſcharge it.

I muſt alſo tell my reader, that the ſeed was of different ſorts, ſuch as red lammas, white lammas, the long-eared wheat, and two or three ſorts of bearded wheat. I found a great deal of difference in the produce, both in the ſize of the ears and ſtooling part; the red lammas was the beſt, the long-eared wheat the next.

I expected the white lammas to be the beſt, but it was not. The greateſt produce in number of ears, was the long-bearded wheat, and I could like it as well as any of them to ſow thin.

There was another ſort of bearded wheat, that both the beard, ear and ſtraw, were ſhorter than any of the reſt, but produced a great many little ears; I did not like this at all, it was the worſt of them all, and there were more ſorts than I can mention.

I ſowed the reſt of the field with barley, with different quantities on an acre; on one ſide of the wheat I ſowed an acre with ſixteen ſtone, the old accuſtomed quantity; it was not worth reaping, for it was all lodged, and grown green through before harveſt, except a top of the gravelly hill, and this was ſmall like hen-corn.

I ſowed an acre on the other ſide of the wheat, with three ſtone, which was a very good crop, for it branched to fill the ground with a fine long-eared corn; it branched from two to ſix or eight ears out of a root, according to the diſtance the grains fell from each other, juſt ſo they ſtooled or branched till they filled the ground.

I produced ſome roots to the Right Honourable and Honourable the Dublin Society, with fifteen ears at them, and wheat with from twenty to thirty ears at each root.

The remainder of the field I ſowed with eight ſtone of barley to an acre, which was an excellent crop.

I forgot to obſerve, that I found a root of bere or winter barley among the wheat, that had fifty-three ears at it, and ſome of the ears had above an hundred grains in them; this grain, in general, is a very great planter or ſtooler; but the grain is much ſmaller than barley, and longer; in fact, it is not a comely grain at all.

I mention theſe facts juſt as they happened.

I often hear of people producing out of gardens, roots of wheat, &c. with ſixty or eighty ears at them; but theſe can be no experiments for improvement; an experiment can never be rightly tried out of its own ſphere or latitude, in which it is wont to grow, or muſt be cultivated in: it cannot be expected, that a farmer can turn his fields into gardens, and cultivate every plant as he would one in a garden that is nurſed.

Every thing loſes its value by being too expenſive and troubleſome: however it was not the caſe with this experiment, for it had not even equal juſtice done it. But it convinced me of the quantity of ſeed that ought to be ſown on an acre, and at what diſtances each plant ought to ſtand.

The next thing I had to find out, was an eaſy method of doing this, and alſo ſome method to prevent vermin from taking the ſeed, in order to remove that old ſaying of a farmer, that he muſt ſow ſome for worms, and ſome for fowls. I refer him to the compound to prevent this malady.

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CHAP. IV.

How to ſet potatoes in drills with the plough.

TAKE any poor worn-out ſtubble land, which may be intended for fallow; plough it in autumn, in two furrow-ridges; that is, lay two furrows back to back, thro' the piece you intend for potatoes.

By doing this, it will lie dry all winter, and in the beginning of March (or ſooner, if the weather permit) harrow it acroſs, and it will fill all the furrows level; after which plough it, either acroſs, or length-wiſe, no matter which, provided the land be all cut and turned up; then again harrow it well and fine; and juſt before you intend to plant potatoes, plough it again into two furrow-ridges, lying back to back, ſo that they muſt cloſe at the top, but not ſo as to let any mold fall into the oppoſite furrow.

Being thus laid in ridges, and the furrows all open, in every furrow ſet a row of potatoes, each about the length of a man's foot aſunder; then take the dunging-baskets, and drop a piece of dung, about the ſize of your fiſt, upon each potatoe; by this method a little dung will go a great way, and a few hands will ſet a great deal in a day.

When thus ſet and dunged, go with the plough, and ſplit the ridge in two, ſo that what was the furrow, will now be the ridge, and the ridge will be over the potatoes: ſo that they will come up in rows through the middle thereof.

In ſummer you may go with the plough up and down every drill, to cut the weeds, and earth up the potatoes.

By this method it may be well termed a potatoe-fallow, as it may be ploughed always when the weeds grow.

In taking them up, go with a plough and turn the whole drill over, by which all or moſt of the potatoes will appear above ground, and be eaſily gathered; but if a ſmall part of them remain ungathered, they will all be found by harrowing, or the next ploughing.

This is a very expeditious way, both in ſetting and taking up, and it ought to be every man's ſtudy to work his land with as little expence as poſſible.

The next eaſy way to ſet potatoes with the plough, is in graſs-land, viz.

Harrow the ſod well, both length and croſswiſe, to ſcratch, wound, and mangle the graſs-roots, in order to ſet them a rotting, which they will do ſpeedily when turned up.

Then begin and plough a furrow eight inches broad, in this ſet a row of potatoes, a foot length aſunder, and on every potatoe drop a lump of dung, about the bigneſs of a man's fiſt; then plough two furrows, and in the third ſet another row, ſo that there will be a furrow between every two rows or drills through the piece. When it is all ſet, harrow it well, but take care not to turn up or diſorder the ſods.

When the potatoes are come up a little above ground, go with a plough up and down every drill, and lay the looſe mold, which the harrow raiſed, to the ſtem of the potatoes; but be careful not to diſturb the ſod. When they are taking up, turn the drill or furrow with the plough, by which means they are eaſily gathered.

The third method of planting potatoes is with ſpades, as they do in Cheſhire.

They dig all the ground, and bury the dung about four inches deep, as if they were trenching in a garden; after which they go with ſetting-ſticks, make a hole, and drop the potatoe in; then they rake the ground to fill the holes.

They are dug up with ſpades alſo; but this is expenſive, in compariſon of ſetting with the plough.

However, they take care not to bury the dung too deep, as alſo not to throw up any bad earth to ſpoil the land, which is too often the caſe in Ireland.

CHAP. V.

Remarks on ſetting potatoes with the plough.

METHINKS I ſee my brother-farmer turn hither in great hurry, to ſee my reaſon for adviſing him to ſet his potatoes with the plough; and not to keep him long in ſuſpence, I plainly tell him, that it ſaves both men, money, and dung, beſides improving his land: theſe are conſiderations well worth his attention.

Firſt it ſaves men; as one man, and two horſes, and five or ſix boys, will ſet as many potatoes in a day with the plough, as ſeventy or eighty men could ſet with ſpades.

Secondly, it ſaves dung; as one load will go as far as four.

Thirdly, none of the dung is loſt by being buried in the trenches; which is evidently the caſe when trenched in the old Iriſh method; but here all the dung takes place immediately, as a lump is dropped upon every potatoe.

Fourthly, potatoes got thus are nearly clear gains, as they may be ſown upon land that is intended for ſummer-fallow, and ſuch land will abſolutely receive more benefit from this potatoe-fallow, than if nothing had grown; for what with hoeing with the plough, and the tops ſmothering the weeds, &c. the ground is made clean and mellow, and in fine order for a wheat-crop at Michaelmas.

And there can be no diſappointment, as potatoes can be ploughed up in a ſpeedy manner.

All theſe reaſons, I hope, will prevail upon the Iriſh farmers, or people in general, to follow this cheap and eaſy method; as nothing concerns a farmer ſo much as working his land with the greateſt diſpatch, and the leaſt expence that reaſon can deviſe.

As I have travelled between England and Ireland for near twenty years paſt, I have had an opportunity to remark how the different markets ruled in the two kingdoms, and I always found that in the cities of York, Lincoln, and in large towns, ſuch as Leeds, Wakefield, Doncaſter, Sheffield, and in ſhort, all over England, where it is cuſtomary to ſet the potatoes with the plough, that they always ſell lower than in Ireland.

This fact is inconteſtible, although it is well known, that in theſe places, land is higher, and ſo is labour of more value.

This ſhews they muſt have a cheaper and eaſier way of coming at them, or they could not be afforded at a lower rate; further, the method of ſetting with the plough is ſo eaſy, that a man may teach, in an hour, as many people as could look at him.

* * *

The expence and profit of an acre of potatoes, raiſed by the plough, as directed under that article.

	l.	s.	d.
To 20 quarters of potatoes, at 9s. per, or 40 ſtone -	9	0	0
To three ploughings, at 2s. 6d. each, if with one man and two horſes - -	0	7	6
To two harrowings -	0	2	0
To one quarter of potatoes for ſeed, at 9s. per -	0	9	0
To 6 loads of dung, at 2s. per	0	12	0
To ſix boys or girls, each at 4d. per day - - -	0	2	0
	1	12	6

Brought over	1	12	6
To two men to ſee they be rightly ſet, and to help to lay the dung - - -	0	1	8
To three times hoeing with the plough - -	0	6	0
To ploughing up - -	0	2	6
To 8 boys or girls, at 4d. each	0	2	8
To carriage home -	0	2	0
To land-rent - -	0	15	0
Total expence	3	2	4
Clear profit	5	17	8

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CHAP. VI.

Remarks and illuſtrations on the foregoing table on potatoes, ſet with the plough.

IN order to encourage the farmer to fall into this valuable piece of husbandry, I have allowed him, in the foregoing table, to be well paid for all his trouble;

and yet he ſees the profit amount to upwards of five pounds ſeventeen ſhillings an acre.

Were I to be very minute, the profit would be much more; I have very often known from fifteen to twenty pounds made on an acre.

If I was to do ſtrict juſtice to th's valuable crop, it ſhould not be charged, either with rent, ploughing, or dung; as it is paſt contradiction, that the land after this would be better for a crop of wheat, the ſucceeding year, than if it had been fallowed in the common way.

It is alſo to be obſerved, that I have charged the potatoes only at nine ſhillings a quarter, which often ſell for much more.

Theſe are all plain and impartial reaſons, and I hope will encourage the farmer to purſue this valuable method.

There are a great many parts of England that follow this method, therefore ſuch may look over this chapter, and leave it for thoſe that know nothing of it, which are a great many parts both of England, Ireland, Scotland, and Wales; ſo excuſe me, if, in other caſes, I mention ſometimes what is known to ſome farmers, as it may be ſtrange to others.

CHAP. VII.

On ſetting potatoes, as in Ireland, on ridges, by trenching.

THE Iriſh method of ſetting potatoes, is in ſome caſes very uſeful, and the cheapeſt of all others, except the plough; and would be much more valuable in all caſes, if they were cautious not to make the trenches too deep, to bury the dung, and throw up bad earth.

It is a very eaſy method, and quick too, becauſe not above one fourth of the ground is dug, and few farmers have fields or cloſes, but what have waſte corners where the plough cannot come; as alſo backs of ditches, &c. which, if he lays on a good coat of manure, he may ſet potatoes in; and when they are dug up, it will make good compoſt for his land.

It is alſo a good method to break up tough, ſtubborn, rooty, or rocky land; becauſe this is a quick method of working it, and the crop will meliorate it to that degree, that it may be ploughed the year following with eaſe; and as to the executing this method, nothing is more eaſily learned, viz.

When you have fixed upon a piece of land for this purpoſe, you muſt lay out your ridges in breadth according to the depth of your ſoil; that is, if the ſoil be ſhallow, make your ridges about four feet broad, and the trench about two feet and a half wide.

This is in order that you may raiſe earth enough, to cover the potatoes without entering upon a dead poor ſoil.

But if your under-ſtratum be good, you may make the trenches deep and narrow, which will ſave land.

Sometimes it happens, that a rich earth, or even a kind of manure, lies within the reach of this trenching; when this happens, it is a treaſure.

Cover your potatoes about four ſolid inches thick; being thus learned, and determined as to the depth and breadth of the ridge, you muſt ſtretch a line, and cut it out; then ſpread your manure ſtraight and even on the ridge, leaving the breadth of the trench without any.

After this, lay on your potatoes at about nine inches from each other; then dig the trench, and turn the firſt ſod-graſs downwards, cloſe to the edge of the ridge; and what the ſod does not meet to cover, finiſh covering it with the ſecond ſpit; but leave the ſhovellings at the bottom of the trench, till the potatoes are ready to peep above the ground; then ſhovel up the looſe, and cover all the ridge thinly over.

This will check the growth of the top, and cauſe the potatoes to ſpread under ground; this is a better way than to finiſh the ridge all at the firſt ſetting, as ſome will do.

If you have much old graſs, or ruſhes, &c. on the ground, or that the ſod is tough, and likely to take much time to rot; in this caſe it is better to trench the ground in December or January, and in March ſet the potatoes; make holes with the planting-machine; but the pegs muſt be thicker, in order to make the holes wide enough to let the ſet to the bottom; or, for want of this machine, you may take a ſetting-ſtick, like the ſhaft of a ſpade, and fix, croſs-wiſe, a ſtrong peg about four inches from the bottom; this is to ſet your foot on, in order to ſink the ſetting-ſtick more eaſily.

Make the holes about nine inches aſunder; in them drop the potatoes, but no deeper than juſt to fall between the two ſods, for they love to ſpread along the firm earth; rake or harrow to fill the holes, then ſhovel the trenches, and finiſh the ridge.

Though rotten dung is doubtleſs beſt, yet if the ground be trenched early enough, long dung will make a good ſhift, and may be better uſed in this than any other crop, as it will have time to rot, and will keep the two ſods open, ſo that the potatoes may have room to run and ſpread between them.

In the county of Leitrim there is a great deal of wet ruſhy land, worth little, and I have ſeen very good potatoes in it, by no other manure than to cut the ruſhes, and lay on the ridge, and make the ridge no broader than the furrow or trench, ſo that the ſods meet; they trench it early, and only make the ridges three feet wide.

However, if they doubt of the land not to bring a good crop thus, they may be ſure of a good crop, if they only give a thin covering of either lime, marle, or lime-ſtone gravel along with the ruſhes; but the ſooner this manure is laid on, (in order to grow to the ſod and rot) the better, and more certainty of a crop; ſuch land generally gives a good crop of bear or wheat, after the potatoes are dug out.

CHAP. VIII.

On different ſorts of potatoes.

THERE are various ſorts of potatoes, more perhaps than I am acquainted with; however, the following is a liſt of the various ſorts which I have cultivated myſelf.

Firſt, white ruſiting; this is a round potatoe, with a rough skin.

Secondly, red ruſiting; this a red round potatoe, with a rough skin.

Thirdly, the large Iriſh white ſmooth potatoe.

Fourthly, the large round red potatoe.

Fifthly, the culgee.

Sixthly, the early-wiſe potatoe.

Seventhly, the white kidney potatoe.

Eightly, the Jeruſalem potatoe.

Ninthly, the bull's eye potatoe.

The bull's eye is a large red potatoe, will grow and yield a plentiful crop on poor ground, but is a very bad eating potatoe; it taſtes not much unlike a yam.

As they produce a plentiful crop, ſome gentlemen ſow them in Ireland, and particularly near Waterford, in the county of Kilkenny, where they feed and ſlaughter many ſwine for exportation.

The Jeruſalem potatoe is long and full of eyes, and is of a great produce; each eye makes a ſet, as indeed ſo they do in every other potatoe; for the Iriſh always cut them in ſets, which is a good way, though not generally practiſed in England.

The culgee is a very ſweet eating potatoe, one ſide is generally red; in their growing, they do not ſpread and grow from ſtrings, like another potatoe, but ſtick to the bottom of the ſtalk like a bunch of grapes, and riſe to the ſurface, inſomuch that often the red ſide will be above ground.

I had a fine crop of them laſt year; they are very fond of a well-tilled ſoil, therefore the drill-method of ſetting them with the plough in broken land, ſuits them beſt.

The wiſe potatoe is of an early kind; they produce a ſmall top, but no bloſſom, and the top withers early; they do not grow very large, are of a light red caſt, full of eyes; they are of a great increaſe, but a great many of them ſmall; they are very uſeful for an early crop, as they are dry and ready for uſe two months before others, but it is not a good keeping potatoe.

The large red Iriſh potatoe is of a good kind, and particularly on ſtrong cold land, where it thrives beſt; it grows large, and produces a good plentiul crop.

As the poor Iriſh eat potatoes inſtead of bread, they are the beſt of all others for that uſe; they will tell you, that they will lie longer than any others on the ſtomach, ſo conſequently are of a ſound, firm texture; their colour is of a deep red, and of a round ſhape; they have a groſs ſtrong ſtalk or top.

The white ruſiting is a very pleaſant eating potatoe; but I do not think them good yielders: neither will they thrive well, without rich well-tilled land.

The red ruſiting is of a hardy ſort, will grow almoſt on any ſort of land, but do not produce many at a root, neither are they large, ſo conſequently are bad yielders, and not a deſirable crop, where other ſeed can be got.

The toad-back is nearly akin to the large Iriſh potatoe, only not ſo large; the skin is almoſt black, and rough like a ruſiting: this is a ſound, dry, firm, good eating potatoe; it is fond of good freſh land, and agrees very well with the Iriſh method of ſetting on lay-land, as directed in the chapter that treats thereon.

The kidney (or by ſome called Spaniſh potatoe) is of an oblong ſhape, a white colour, with a yellowiſh caſt; it is a ſweet good eating potatoe, but not ſo dry, or mealy, as ſome others; therefore not ſo proper to be uſed in the place of bread (as is the caſe in Ireland); but is very good to be chopped up, and uſed as ſauce, or roots, to meat; it is an exceeding good yielder, and by nature ſeeks its food deep, therefore requires a good covering with mold when ſet; it will thrive well on a ſtrong deep ſoil, but requires to be well tilled.

CHAP. IX.

To improve ground, deſtroy whin and broom, and, at the ſame time, raiſe a valuable crop of potatoes.

AS much land as there lies, in a manner waſte, through his Majeſty's dominions, by being over-run with whins, I have not as yet ſeen any method found out to eradicate them, but by ſtrength of men and money; however, what is to follow, may ſhew the great treaſure that may be made of them, by thoſe, who, perhaps, formerly thought them a nuiſance, and, with great expence, have ſtrove to be quit of them.

Some burn the tops on the ground, and ſtub up the roots by men, at great expence; others (who think themſelves, perhaps, at the height of improvement in this matter) tear them up with ſtrong ploughs and horſes. But if they conſidered what a vaſt body of manure they ſend into the clouds, and deſtroy, they certainly would be angry with themſelves for ſo doing.

Particularly, when they once try the valuable method of ſetting potatoes on them; they will then ſee that the ſap they contain is a very rich manure, which, when ſmothered, quickly rots: it will enrich the ground paſt imagination, and, at the ſame time, raiſe a valuable crop, with very little expence.

The ſecond crop (for it will bring two) will not be much inferior to the firſt, and it may be got with very ſmall trouble or expence.

After the ſecond crop of potatoes is off, if the ground be ſtrong, it will bring a good crop of wheat or beans; or if light and ſandy, barley or rye.

The firſt thing that is to be done, is to cut a way through the whins, where the trenches will fall, then ſtretch a line to the breadth of the ridge you fix upon; if your ground be a deep good ſoil, the ridge may be broad, and the trench ſo deep, as to afford earth enough to cover the whins four inches thick.

The moſt general breadth of theſe beds or ridges, is nine feet; and the trench or furrow, two feet; ſo that two ſpits deep and a ſhovelling, will give the covering required.

Tread down the whins before you lay on the earth, ſo as to make them fall cloſe one way; if they be not very ſtrong ſtalks, treading and the earth will keep them down; but if the ſtalks be too groſs, give them a nick cloſe to the root. All the whins you cut up where the furrow falls, you muſt lay on the ridge in the moſt vacant places you can find, as there are few cloſes ſo full of whins, but have ſome bare ſpots; therefore what is cut from the furrow will make up the deficiency of manure, as they will now act in that ſtation.

But it matters not how ſtrong or rank the whins are on the ground: if they be ſix feet high in one continued bed, the better, and the more manure it will afford your land.

There is no method yet found out for deſtroying whins equal to this; as to fallow, they often grow after in ſpots, but they are effectually ſmothered when properly done thus.

The longer the ground is trenched before the potatoes are ſet the better: that the whins may have time to rot and ferment with the earth, they ſhould be trenched under about Michaelmas, and the potatoes ſet in April following.

Holes muſt be made, at nine inches aſunder, with a ſetting-ſtick, to let the ſeed down to the whins. In order to make the ſtick ſink the eaſier, fix a pin acroſs, ſix inches from the bottom, for to ſet the foot upon, in the nature of a ſpade.

And as you make the holes, any children will follow, and drop in the ſeed.

After they are ſet, rake the land over to fill the holes.

When the potatoes are juſt beginning to peep above ground, then ſhovel the furrows, and throw it over the bed, which will give it a thin covering; all the looſe earth that the ſpade leaves, muſt be reſerved at the bottom of the furrow, on purpoſe for this uſe.

When you dig out the potatoes, gather them as clean as you can; there will ſtill be ſufficient ſeed left in the ground for a ſecond crop; do not raiſe any of the whin-ſtalks, but leave them in the ground.

When the potatoes are up, ſhovel the trenches, and leave the ridge ſmooth covered up all winter.

If there be not a very hard froſt, you will get a ſecond crop without any more expence; but if the froſt be ſo hard, as to rot the ſets in the ground, all you have to do, is to ſet them over again in the ſpring; and after they are ſet, rake and fill the holes as you did the firſt year.

It is by far the beſt to take two crops, becauſe the ſecond is got for little or no expence; and it gives a ſufficient time for the whins to rot, and the earth to meliorate.

The ſtalks and roots of the whins will be ſo rotten, as not to reſiſt the plough; therefore you may plough up the ſecond crop of potatoes, and till the ground either for wheat or barley; which cannot fail of a crop after ſuch a rich dreſſing.

A Table of expence and profit of an acre of whinny land, ſet with potatoes.

To digging 160 perch or fall, at 2d. per - -	1	6	8
To ſeed and ſetting -	0	10	0
To ſhovelling or finiſhing -	0	2	0
Total expence	1	18	8
To 100 buſhels of potatoes, at 2s. each - -	10	0	0
Clear profit	8	1	4

The above is juſt as it ſtands with my experiment. I am ſenſible, that if the land be tolerable good, and a full crop of whins, an acre will produce double the quantity; but my land was a very bad ſand.

I have not mentioned any thing for taking up the potatoes, as I made no charge in my experiment, but the ſecond crop pays well for that, as it will have as many potatoes in bulk, though not ſo large, and there is no expence attending it, but the gathering of the two crops.

I am ſo unfortunate as not to have any whinny land in my poſſeſſion at preſent, as all I had is reclaimed; but I aſſure my reader, I will take the firſt whin-farm I can meet with, if it ſuit my ſituation.

Broom is managed in every degree the ſame way, and will not fail to enrich the land by its fertilizing quality; but however it is to be obſerved, that it generally grows on lighter land than whins; therefore, if the farmer's ſituation for clay or marle will allow, he muſt give it a coat of either the one or the other which he is maſter of, before he trenches the ground; that is, he muſt cut the broom and lay it on the ridges, and then ſpread the marle upon it; after this, trench and cover it with earth, as directed for whins.

CHAP. X.

The management and uſe of fitches.

FITCHES are a very uſeful good crop, and particularly for winter or ſpring-feeding for ſheep, or indeed other cattle; and what adds ſtill to their value, is, that they want no dung or manure.

They may be ſown and will grow upon land that would lie in an uſeleſs ſtate all winter; and what is more, they add to the fertilizing ſuch land; neither does a farmer pay one penny more rent for this crop, than he would for the ſtubble ſtanding on the ſaid land.

The chief uſe of fitches is to ſupply the farmer with winter-feeding on his ſtubble-lands, that would otherwiſe be waſte, from the time the crop is reaped, which is about September, to March or April following: in this caſe they are very valuable, as what benefits either the land or the farmer gets by them, is clear gain.

But as uſeful as fitches are in this caſe, they are too inconſiderable a crop to ſtand all ſummer, and take the year's rent upon them, except in very poor, ſandy, or gravelly land, which is generally of a low rent.

The better the land they are ſown on for the winter-feeding, doubtleſs the better herbage they will make; alſo, the ſooner they are ſown in autumn, (ſo as to have as much benefit of the declining ſummer-ſun as poſſible) the better and ſtronger your herbage will be; therefore the more cattle it will ſupport: and if the land be a rich, deep, ſtrong loam or clay, it will produce good herbage; tho' it is not proper for ſeed, becauſe the richneſs of the ſoil would force it all into ſtraw, but little corn.

The method of thoſe that would ſow

fitches upon their waſte ſtubble-land, for winter-feeding, muſt be thus:

Take any ſort of land, that has been under rape, cole-ſeed, turnips, or any ſort of corn; and as ſoon as the crop is reaped and off, plough the ſtubble under; begin in the middle of the ridge, and raiſe it as high as poſſible with the plough, (by gathering or taking it up) in order that it may lie as dry as poſſible all winter; which will add both to the goodneſs of the crop, and cleanneſs of the cattle's feeding.

This done, ſow your fitches at the rate of ten ſtone to the Engliſh acre; then harrow them in; after this water-furrow and gripe-croſs your ridges in the loweſt places of the land, leading to the ſide-drains, in order to give a ready paſſage for the winter's water when it falls.

If they be ſown at the latter end of Auguſt, or the beginning of September, you may turn your ſheep in about the middle of December.

Eat them all winter, and in ſpring the land will be in fine order for oats or barley.

Some chuſe to preſerve their fitches till ſpring, to feed early lambs or weathers on, which is very profitable: others will eat them all the month of May, and then give the land a couple of ploughings, and ſow it with turnips or rape at Midſummer; this is alſo a good way.

Others again will fallow all ſummer, after the fitches are eat of, which will greatly enrich the land, and then ſow wheat on it in autumn.

If you intend your fitches for ſeed, ſow them in February, at the rate of ſix ſtone to the acre, and harveſt them as peas. But if they be intended to plough in for dung, (which is the worſt way, as it is better to make dung by eating them on the ground) ſow them in March, at eight ſtone to the acre, and plough them in when full of bloſſom, as directed for buckwheat.

If you intend this crop for fodder, by the way of hay, they muſt be mown before they are ripe; that is, when the ſtraw is full of juices and ſap.

By taking them thus green, when the ſtraw is full of ſap or rich ſubſtances, the grain does not ſhake out; and the horſes eat ſtraw and corn all together, which is excellent fodder.

In this caſe, the hay muſt be made by the ſame method as any other hay; only by being cut in this ſtate, the ſtraw will be particularly full of ſap; therefore you muſt be careful that it neither rot or mould.

The quality of fitches is ſuch that they will grow almoſt on any ſort of land; if they ſtand for ſeed, poor gravelly, or light ſandy land ſuits them beſt; for indeed they are moſtly ſown where nothing elſe will grow; and I think they exceed any other graſs or crop whatever, except turnips, for winter-feeding, as they ſuit our climates, being a native of theſe kingdoms, and a plant that keeps green all winter.

Indeed they are of ſuch a juicy herbagy nature, that though the ſeed ripens, dries, and ſheds, yet the ſtalk or ſtraw will be a green herbage, and full of juices, after the ſeed has deſerted it.

CHAP. XI.

Explanation and nature of different ſorts of pulſe, ſuch as fitch, tare, lentils, &c.

THE following multiplicity of names confuſedly made uſe of by different authors, to convey the meaning of one plant, may well puzzle or confuſe the ideas of a farmer, and ſend him in ſearch after plants, corn, or grain, of which perhaps he himſelf may be already poſſeſſed.

However it cannot be expected he ſhould have a ſufficient library of books always at hand to clear up references, to which he is too often referred: it is enough to tell him, that though the many following names are made uſe of in different parts of the two kingdoms, yet fitch is a name that ſuits our Engliſh tongue beſt, and what may be underſtood by every one that underſtands the language: to this name is added vetch, ſetch, thetch, thetches, fitches, chick and checkes: and theſe are abſolutely meaning one and the ſame thing; ſome make the ſingular, and others the plural number.

Moſt people are inclined to believe the real name of this pulſe to be vetch; but this cannot be, as vetch is the Latin word for tare; and though the tare is of the pulſe kind, yet it hardly bears a reſemblance to the fitch in queſtion.

Beſides the tare is conſidered amongſt the judicious farmers as a weed; and with great reaſon too, for it is as deſtructive to corn as any weed whatever; being a weak, climbing, heavy-topped, feathery plant, which pulls the corn down and rots it.

The ſeed alſo, when once it gets a footing, is very hard to get clear of, as it is of a very multiplying nature; it is of a ſmall, round ſhape, and blackiſh colour. It is likewiſe ſpoken of in ſcripture as a weed.

Notwithſtanding all this, I, with regret, ſee it largely treated on by ſome authors, as a valuable crop; however, I know the ill conſequences of it ſo well, by woeful experience, that I ſhall not beſtow a ſingle line about it, except to adviſe the farmer, that already has it, to clear his land of it as faſt as poſſible.

There are two ſorts of fitches, namely, the large and ſmall: the large is of a grey colour, and is moſt proper for to ſow when the crop is intended to ſtand for ſeed.

The ſmall ſort is a ſmall black grain, and a hardy plant, and not ſo groſs, therefore not ſo apt to lodge and rot by the ſeverity of the winter, as the former.

The fitch bears a blue, or rather purple bloſſom, much like a grey field-pea; the pod of much the ſame likeneſs, but ſmall; the ſtalk has a reſemblance alſo, but will not grow to near the length or groſſneſs, and is clad by a ſmall narrow-feathered leaf.

The lentil (but corruptly called, by ſome, till) is a ſpecies of pulſe, and one that deſerves the farmer's attention, is nearly of the ſame nature as the fitch, therefore muſt have the ſame management, but will afford to be ſown ſomething later in the ſpring, as it is rather of an earlier kind.

The ſtalk of the lentil is more taper than that of fitches, ſo conſequently will ſtand better without a ſupport.

For this reaſon, the farmers may ſow it with ſucceſs amongſt their oats, as it is able to ſupport itſelf without pulling the oats down.

Again, it is a great bearer, and adds much to the mealy part of the oat; therefore conſequently has more ſtrength of food for the horſe; and the ſtraw being mixed with the oat ſtraw, makes excellent fodder.

The pod that holds the ſeed is ſomewhat like that of a pea, but broader in proportion, and very thin, as the two ſides fall cloſe together round the ſeed.

The ſeed is grey, and of a round flattiſh ſhape; the leaves grow in pairs oppoſite each other, are long, ſmall and pointed, of a paliſh green, and a little downy at the under ſide.

The corn is very good for pigeons or fowls of any ſort: it is alſo made uſe of for the ſame purpoſes as the grey pea or fitch.

One thing is to be ſaid of the lentil, that it will grow on any poor, light gravel or ſandy land, perhaps better than any other grain or ſort of pulſe; but tho' this be its perfection, yet, doubtleſs, the better the land, the ſtouter the crop, provided it be of a warm ſandy nature. Indeed any grain of the pulſe kind is fond of ſuch land; but when it is richer than common, the ſeed muſt be ſown thinner in proportion, and particularly when the crop is intended to ſtand for ſeed.

CHAP. XII.

On the different management of clover through all its variations.

CLover ſuits the climate of England and Ireland better than moſt other graſſes, and is a very beneficial crop, either for grazing or meadow; beſides, it is a great improver of land, having a ſtrong fibrous root, which quickly incorporates with the earth; and when ploughed up, or diſturbed by tillage, ſoon rots, and becomes a very rich manure.

This, together with the ſeveral rich crops it produces, makes it of more value than any other artificial graſs.

The way to make the moſt of it I take to be this, viz.

Sow it with a ſpring-crop; that is, after the corn is ſown and harrowed, ſow the clover-ſeed, at the rate of ten pounds to an Engliſh acre.

When ſown, either buſh-harrow or roll it; but the latter is the beſt.

When the corn is reaped, eat the clover for about a month; though there are many who object againſt this method; (but my reaſons for it may be ſeen in the enſuing chapter on clover) then lay it up. It will be well grown by April, at which time you may turn in the ewes and lambs.

It is an exellent thing to create milk for feeding lambs with; alſo good feeding for any ſort of cattle; but be watchful to keep your horned cattle walking or ſtirring about, or they will be very apt to hóve and burſt, as it is a very ſwelling food, and particularly if the weather be wet; for when the cattle are firſt turned in, they eat greedily, not taking time to chew it.

Therefore it is beſt, only to ſuffer them to be in about ten minutes at a time the firſt day, twenty the next, and ſo on: but it is beſt to turn them in with a full belly of hay, or ſome dry meat, which will abate their greedy appetite, and help to dry up the watery particles.

One great uſe or advantage in clover, is its early ſpring, for it comes in at leaſt a month before natural graſs; and a month's graſs early in the ſpring, is worth two at any other time of the year.

This is a conſideration a farmer ought to bear in mind, and that for ſeveral reaſons, viz.

Firſt for feeding early lambs.

Secondly, to ſupply the place of hay, which at this time of the year is generally ſcarce and dear.

Thirdly, it is a great ſtrengthener to

young cattle, ſuch as calves and foals; for it firſt purges, and then puts them in health and vigour, to enter with a good conſtitution into the natural graſs-paſture: it is always obſerved, that when they go weak and poor into the ſummer-graſs, beſt part of the ſummer is ſpent (in which time they ſhould grow in bone) before they recover their fleſh.

Fourthly, it ſprings the in-calving cows to milk; and a farmer ought to bear in mind, that a fortnight's good feeding before a cow calves, is worth a month after, as it fluſhes her to milk, by opening her milk-veins, ſtretching her udder, teats, and milk-veſſels, ſtrengthens and feeds the calf within, and herſelf to undergo the painful task of calving.

A cow with health and ſtrength at calving, is worth one and a half that is poor, for milk in ſummer.

After this moſt valuable graſs has performed all theſe good offices by its early ſpring, lay it up for meadow about the firſt of May, and it will be ready to mow in a month or five weeks after.

By good management, it will produce three crops in one year, beſides the after-graſs, or winter-herbage, which is almoſt of as much value as the reſt.

The different ſtages for a crop of clover are as follows, viz.

Suppoſe the ſeed to be ſown amongſt corn in the beginning of April; this year the rent of the land is paid by the corn-crop, therefore the clover has no charge of rent upon it till May following; however, it is of great uſe in this year for winter-feeding.

After the corn is reaped, the ſtubbles muſt be kept free from cattle till the clover get to be a good herbage, which will be about the firſt of November; then turn light cattle in: eat it till the firſt of December, or till you ſee that they have cropped off all the firſt ſhoots.

Then take them out, and lay it up till the firſt of April, at which time it will be a good herbage.

Therefore if you be ſcarce of graſs, and your choice to eat it, you may turn in cattle for a month; and the firſt of May lay it up for a meadow crop.

If a wet ſummer follows, and the ground be good, it will be ready to cut by the tenth of June for hay: the next crop will produce ſeed, or, if you chuſe, another crop of hay.

The time to cut the ſecond crop for hay, is about the middle of September, or when the flowers are all full blown, and ſome of the moſt forward begin to fade.

But if you would ſave the ſeed, give it time enough to ripen, as there is no fear of its ſhedding, it is ſo well incloſed with a very ſticking, tough, wirey pod; therefore defer cutting till very ripe; as alſo make it very dry and raſh when cut, or it will not part from the ſtraw or pod, by threſhing, without more labour than it is worth.

By taking out the ſeed, the ſtraw will be threſhed very ſhort and muſhy; however, it will be good fodder, though not near equal to the crop managed for hay in its proper ſeaſon.

He is a good workman that can threſh out a peck of clean ſeed in a day; he muſt firſt threſh the pods out of the ſtraw, then threſh the pods, and rub and winnow the ſeed out, then dry the pods or husks again in the ſun, and threſh them over again, and ſo repeat theſe operations till he gets the ſeed ſeparated from the husk.

But the beſt way is to threſh the pods or husks out of the ſtraw, and then take them to the mill, and ſhell them as you would oats; this is very eaſily done, and ſaves a great deal of labour and ſeed too, as little by this will be waſted.

There is one piece of care, or obſervation that a farmer ſhould never loſe ſight of, if he expects a full crop of ſeed; and that is, never to lay up his firſt growth of clover for ſeed; for though it may grow vigorouſly, bloſſom, and look well to him who is not a true judge, yet it will not bear ſeed.

Therefore when a farmer eats his clover in April or May, he muſt ſee that his cattle eat it near, and crop every branch, as thoſe that miſs cropping, though they flower will not ſeed; for this reaſon I recommend eating it in April, mowing the hay-crop in June, and ſaving the ſeed from the laſt crop, which will produce the moſt and beſt ſeed.

But if the farmer chuſes, he may not eat it in ſpring, by which he may mow the firſt crop of hay by the middle of May, and the next crop raiſe ſeed from.

This will bring the ſeed-crop more in the middle of ſummer, when the heat is ſtrong, ſo conſequently in leſs danger of being ſpoiled by autumn-rains, which come earlier in Ireland, and the north of England, than they do near London.

I mention this, that every farmer may be a judge of his own ſituation, and ſuit his crop accordingly.

It is a groſs miſtake, and very often committed, to let the firſt crop of clover-hay ſtand too long before it is cut, for ſeveral reaſons.

Firſt, when it ſtands till the bottom of the ſtalk turns brown, it is drained of all its ſubſtance, and alſo has exhauſted or weakened the root too much of its vigour; therefore, when it is mown, the ſtubble is left as dead or lifeleſs as that of corn; and the next ſhoot or branch which comes forth, muſt be from the very root, which admits of a fortnight's delay in the growth of the crop: whereas, on the other hand, if it was cut when the ſtalk is green and full of ſap or juices, it would ſend forth freſh ſhoots out of the very ſtalk, a little below the cut; and the coat of clover being ſtripped off, the roots are ſupplied (before they are left too weak and ſickly) with freſh air, and kept in vigour and ſtrength to ſupport, and bring to maturity, the ſucceeding crop.

It is true there may not be ſo great a bulk of hay in the firſt crop, becauſe the ſtalk is cut when ſoft and full of juices therefore flattens, cloſes, and runs or cakes together when in ſtack, &c.

It alſo requires more care in making; but as this happens in the height of ſummer, there is not ſo much danger that way; and a ſtone of ſuch hay is worth two of that which is let to ſtand till the ſtalks are left dry, hard, and impoveriſhed.

Clover may be ſown with ſucceſs amongſt oats; alſo if wheat or rye be ſown in broad ridges, it may be ſown amongſt them in May, and rolled in.

I have ſeen good clover where the ſeed was ſown amongſt flax; but the beſt of theſe crops for raiſing clover is barley, as this grain is not apt to grow with ſo long and groſs a ſtraw as oats, wheat, or rye; therefore the clover is not in equal danger of being ſmothered. Yet there is no general rule without an exception.

I have ſeen good and bad clover among all theſe crops; a deal depends upon a good ſeaſon: barley however has the beſt chance, as we generally till well for it, barley being a tender grain.

CHAP. XIII.

On cattle hoved by clover, and its cure.

THOUGH it may ſeem ſtrange or odd in me, to make a compariſon between the human and brute creation; yet true it is, that what will effect the cure in one, will add to the other, if due regard be had to proportion the doſe agreeable to the ſtrength of the animal.

In many inſtances, ſimilar caſes might be quoted to ſupport this aſſertion; but, as few words will anſwer my preſent purpoſe, I ſhall leave every thing elſe to the recollection of my reader.

The moſt natural difference between the entrails of the human and brute ſpecies, is, that the former lies in a perpendicular, and the latter in a horizontal direction.

What I aim at by this inference, is, to make my reader feel by himſelf the diſorder that affects a beaſt by eating over greedily.

I dare ſay, not one of my readers but, upon recollection, will find that he, ſome time or other, has eat his meat haſtily, without taking time to chew it, till it has given him uneaſineſs in his bowels by a ſuppreſſion of wind; inſomuch, that he has been obliged to halt, or pauſe a little till the bit ſettled; after which he breaks wind with a belch.

This diſorder, when coming on, he plainly feels is no other than ſwallowing to quick.

Therefore, I ſay, when he finds the gullet overcharged, and the wind ſo preſt, he ſtops till all is right again; but if he was ſtill to perſiſt in eating, the conſequence might be dangerous: and I doubt not but many a one loſes their lives by it; as we often hear of people dying at meat.

Juſt ſuch is the caſe with cattle eating clover: for the nature of clover is ſuch, that a beaſt can fill his mouth quicker with it than any other graſs; which is owing to its buſhy top, and ſoft frem ſmall ſtalk.

All natural graſs is ſmall at top, and thickeſt towards the bottom; therefore takes a good pull to break it off, which gives time for a ſwallow; neither can he fill his mouth ſo quick; but clover being quite the reverſe, he can gather it faſter, or quicker, than the gullet can diſcharge it into the maw.

Therefore one mouthful, which is very large, rolled up in balls, overtakes another, till it ſtops up the paſſage of the throat, and ſuppreſſes the inward air; ſo puts a final ſtop to reſpiration; inſomuch, that all the inward machinery is like a blown bladder.

All theſe preſſing upon the lungs, hinder them from playing alſo; which cauſes a total ſtagnation of the inward machinery; and if a remedy cannot be procured before the blood abates in its circulation, and cools in the veins, death muſt unavoidably enſue.

I remember an accident that happened when I was a ſchool-boy, and as I was preſent, I ſhall repeat it as follows, viz.

A farmer turned a parcel of cattle into a clover-field, in the month of May; but in a ſmall time after they were turned in, a bullock was obſerved to be very ſick; he was immediately drove out of the field into the town, which was within two or three hundred yards; but in the town, before he could reach the farmer's houſe, he dropped down dead to all appearance; it was oppoſite an alehouſe.

Immediately people flocked about him; a drunken blackſmith was in the alehouſe, with a gun-barrel in his hand, and the breach-pin out, as he had been cleaning it; he came out running among the reſt, and thruſt the gun-barrel up his fundament; out of which iſſued a deal of wind.

Another by-ſtander run his penknife into his flank behind his laſt rib.

I had a pellit-gun in my hand, and they put it into the orifice, out thereof alſo ruſhed a deal of wind. They alſo bled him. This was all performed inſtantly.

He began to ſhew ſigns of life; they then gave him a gliſter of warm milk, oil, and brown ſugar.

However, in ſhort, with one cookery or another, the bullock recovered; and I believe every thing that was done was new; as moſt preſent were ſtrangers to clover.

As it was only then making its entrance into the neighbourhood, therefore they were all ſtrangers to its effects. And tho' they ſtumbled upon a cure, yet not one of them perhaps could give a rational, coherent anſwer upon the ſubject.

The perſon to whom the bullock belonged, was a very ſenſible, curious enterpriſing man.

He was the firſt that introduced any new thing into the neighbourhood; of which clover was one inſtance.

As he believed the bullock dead, he ſtood very coolly looking on, and let them do what they would. After which he made very ſenſible remarks.

I have heard him ſince ſay, that that was a lucky bullock; as he had been the means of ſaving him many cattle.

By the experiment he afforded, the people's attention was ſo much engroſſed with this bullock, that a cow and a two-year old heifer were dead in the field before they had preſence of mind to attend to them, but the farmer told me he never loſt one after.

I asked him his cure; he told me that he never wanted one; for he looked upon a prevention preferable to a medicine, or any other operation.

His method was always to keep the cattle ſtirring when they were firſt turned into clover; ſo that three or four mouthfuls were as much as they were admitted to take at once; and then to walk a few yards till that had time to ſettle into the maw; ſo as the gullet wind as he called it, had time to ariſe.

Thus he kept them ſtirring till they were full; and, for a few nights at firſt, turned them into a common graſs-paſture.

There is no doubt but this is a very neceſſary precaution, and, if duly attended to, would render every other operation, or medicine ineffectual.

However, leſt thro' neglect, ignorance, or accident, cattle ſhould break into clover, it is abſolutely neceſſary that a cure ſhould be pointed out.

I believe my reader will admit, that the neareſt ſtep to a cure in any caſe, is to know the diſeaſe, and the cauſe of it; this will make the cure more certain.

Now we find, that the cauſe of this malady is by ſuddenly over-filling the neck-gut, which ſwells, and ſtops all the vent of the throat or wind-pipe.

This over-preſſure cloſes the lungs, and hinders them from playing; upon which it puts a final ſtop to the circulation of the blood through all the veins.

When this loſes its motion, it immediately cools and thickens.

Therefore, in this caſe, every ſtep muſt be very quick, as delay will put it out of the power of medicine to relieve.

The firſt thing is to open a vein, the next to make an inciſion with a knife in the flank, about three inches from the hinder rib, as near the hip-bone as can be, not to enter into the fleſh; there is no danger can enſue from this, provided you keep high enough up, not to touch the entrails.

Put a quill in the orifice to keep it open; while this is doing, warm a quart of milk, and put it into half a pound of treacle, an ounce of anniſeed, and a table-ſpoon-ful of ſweet oil; mix all together, and give it as a gliſter: this will nouriſh the entrails, and keep warm and alive the blood, till a reſpiration can be recovered.

If a gliſter of this ſort cannot be got, ſtamp an onion, mix with it butter and pepper, and put it up the fundament; it will cauſe an attraction, and a heat: pour ſome ſweet oil or quickſilver down the throat, which will help to force a paſſage for the wind to operate.

CHAP. XIV.

Remarks on clover.

SOME perſons object to the eating of clover, the firſt winter after it is ſown, believing it to weaken the crop; but, on the contrary, I believe it ſtrengthens it; for as clover grows amongſt corn, it is drawn up weak and tender, by its warm ſituation of being ſurrounded by the crop; and when a tall weak plant of this ſort comes to be ſuddenly expoſed, it is a wonder if the delicacy of its conſtitution can bear the ſudden change without a ſhock;

therefore not fit to encounter with the inclemency of a winter.

I look upon it to be much better to eat of this weak aſpiring top, by which means it makes the root ſtrike downwards, grow ſtrong and incorporate with the ſoil and earth; the top alſo will ſend forth freſh ſhoots, more of them, and of a firmer texture or kind.

To convince myſelf of this, I once divided a field of clover into two parts, one of which I eat in common with the reſt of the ſtubbles, the other I did not eat all till May.

The part I eat, I found to be a good deal ranker or thicker ſet on the ground than the other; and I obſerved, that the leaves of the clover that were not eaten, turned yellow with the froſt, and died away.

In this caſe, as in moſt others, reaſon ſpeaks for itſelf, that it is better to take off a ſickly tender, weak part or fibre, than to let it die away, and thereby communicate its ſtate of mortification to the main body.

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CHAP. XV.

On Lucerne, its perfection and management, alſo the method of drilling with the common plough, &c.

LA Lucerne, ſo called by the French, but lucerne by the Engliſh, is a very profitable graſs, and particularly where the climate is hot, and the land light and ſandy, or gravelly and rocky.

It is an excellent food, either as herbage or hay; but its greateſt perfection is for ſoiling of cattle, which makes it of great ſervice in ſome parts of England, where there are few incloſures, and where graſs-land is ſcarce; inſomuch that the farmers have no place whereon to turn their cattle, except on bare commons already over-ſtocked, or tether them on the end of a ridge of corn, in an open corn town-field.

I ſay, in ſuch places, I know not any graſs-crop that would turn out to a greater advantage, or be more uſeful to a farmer; for in ſuch places let a man's ſtock of cattle be ever ſo great, he cannot lay his land down for paſturage, let his inclination be ever ſo much for it: as ſuppoſing the town-fields to be four or five hundred acres, yet he will not have above two or three ridges in a place; he is therefore obliged to concur with his neighbours in the point of farming, not having it in his power to lay his land out for grazing; but as there are ſcarce any perſons in the ſaid towns, but what have ſmall fields, or crofts, therefore might ſow lucerne on their ridges in the open fields, and keep what number of cattle they pleaſe, by ſoiling them in their crofts; and a great advantage they would have in ſaving the dung too, a very material conſideration in theſe corn-countries.

The caſe in Ireland, however, is quite different, as there are few who hold land, but who have it cloſed to themſelves; therefore they ſeldom want graſs in ſummer, and conſequently need not plough up their lands for that purpoſe. Moreover the lands of Ireland are naturally given to graſs.

Therefore, in this country, I look upon clover to be by much the better crop; for though it does not laſt ſo long in the ground, yet it laſts long enough to ſee the natural graſs up; and what is it we ſow artificial graſs-ſeeds for, but to ſupply the defect of this, or rather for to keep the land in profit till the natural graſs recovers its root, which has been damaged or otherwiſe deſtroyed by long tillage?

Further, lucerne is not ſo early a ſpring as clover; for, if we conſider, that it is the ſun we may thank for nouriſhing the earth, and who makes her ſend forth her early ſpring; and it is unqueſtionably the ſurface that firſt feels the warmth thereof; therefore any vegetable that roots ſhallow, or horizontally, will make the earlieſt ſhoot; conſequently lucerne muſt have the more backward ſpring, as it ſtrikes a great deal deeper than the clover, therefore feeds in a colder climate.

I would further obſerve, that clover improves land better than lucerne, by its root ſpreading more largely and plentiful through the ſod.

I am ſtrongly of opinion, that nothing in nature improves land equal to the root of clover; for if it only lies one year, plough it up, and the furrow or ſod will be a perfect mattreſs; and after ſaid ploughing, the root ſoon rots and becomes the fineſt manure upon earth.

But this we cannot ſay for lucerne; for though what root there is may make good manure, yet it does not ſpread, or produce half ſo much root in the ſod, becauſe it ſtrikes downwards like a parſnip, therefore a great deal of it lies too deep to be raiſed by the plough.

The two chief perfections of lucerne are, firſt in yielding a plentiful produce, though ſown in a ſandy, gravelly, or rocky ground, provided it be made tolerably rich, and finely tilled.

The next is for ſoiling cattle, which, as I hinted before, is uſeleſs in Ireland, or moſt incloſed countries; as I hardly think any one would be at the expence of men to cut and carry ſoil to his cattle, when he has good paſture-fields for them to run in and help themſelves; beſides, cattle never thrive ſo well when penned up in a ſmall paſture, as when they have room to rake over.

In ſhort, there are ſo many arguments in ſupport of clover being a better and more ſuitable crop than lucerne, eſpecially for the lands and climate of Ireland, the north of England, and Scotland; that on experience, it muſt always be found to have the preference.

Every farmer, however, is the beſt judge what ſort of land he has, or ſituation he is in, and accordingly may ſuit his crop thereto.

When a perſon hears two tales, though he be a ſtranger to the affair, yet he may give a ſhrewd gueſs which is the moſt reaſonable or likely to ſuit his purpoſe.

Lucerne requires a deep ſoil; and tho' the ſeed muſt be thinly covered, when ſown, yet the land muſt be prepared by deep ploughing as the root ſtrikes deep.

It is neceſſary the land have a good ſummer-fallow; when the corn is ſown and harrowed, ſow the lucerne and harrow once in a place, with the harrow turned the wrong end foremoſt; and when the corn is come up, roll it.

If the lucerne be intended for ſummer-paſture or meadow, ſow it in the broad-caſt way, and in order to ſow it even, ſow it twice in a place.

Take no more in your hand than you can hold between one finger and thumb, and on a ridge that is twelve feet broad, make three caſts; this will ſow at the rate of four pounds to an Engliſh acre, at ſixteen ounces to the pound, and five yards and a half to the perch, and ſo in proportion for the Scotch and Iriſh acre.

If the lucerne be intended for ſoiling cattle, it is by much the beſt to ſow it in drills, viz.

Two drills at eight inches aſunder, and then an interval of three feet, and then two drills more, and another interval of three feet; and ſo on thro' the piece you intend to ſow.

It may appear to farmers that are ſtrangers to the drill-husbandry, that it is a very nice affair, and not to be done without the expence and nicety of a drill-plough; nor did I ever read any inſtructions that directed it to be done by any other way; but be aſſured there is nothing more eaſy, for a common plough will make a very good ſhift, when managed in the following manner, viz.

The land being well prepared for the ſeed, if lucerne is to be ſown in drills, without a corn-crop, begin to plough at one ſide of the field, and plough a furrow two inches deep, and eight broad, in this ſcatter the ſeed; then plough another furrow, in this ſow none, but in the next ſow another row; this leaves a ſpace of eight inches between the rows; then plough five more, and in the ſixth and eighth ſcatter the ſeed; ſo go on, leaving five furrows unſown, and two ſown; this will leave room enough between the two rows in the wide interval, for the plough to go.

As ſoon as the lucerne is above ground, go with the plough, and lay a little mold at the ſtem of each row; and always when the weeds grow, plough a couple of furrows in the wide interval, which will kill the weeds and fallow the ground, and give additional vigour to the plants: weed or hand-hoe in the narrow intervals.

If lucerne is to be ſown amongſt corn, it cannot be ſet in drills, as above, with the plough; therefore ſtretch a line at the ſame diſtances of forty-eight inches to the wide interval, and eight to the narrow, and ſhake the ſeed along it, and harrow it in, as if it was ſown in the broadcaſt way; and as ſoon as the corn is cut, plough the wide intervals, and hand-hoe in the narrow ſpaces between the two drills.

There can be nothing more eaſy than drilling and horſe-hoeing in the above manner, which may anſwer the end by ſowing any ſort of grain, and particularly wheat, beans and peas.

Inſtead of a drill-box, or hopper, which is uſed in ploughs, take a tin porringer, and punch three or four holes in the bottom, in the nature of a cullender, juſt the ſize of the grain or ſeed you have to ſow; by ſhaking along the furrow, you may bring yourſelf to a tolerable degree of exactneſs, and ſwiftneſs too; for one man may ſow as faſt as a plough will go.

The time to mow lucerne is when juſt beginning to flower.

Avoid making the hay too green, for it will appear to be dry when it is not, therefore may give again, and damage, it being ſo full of ſap or juices.

When it is cut for ſoil, there is nothing more than to cut the oldeſt firſt.

It may begin to be cut when ſix or eight inches high, and ſo continue cutting as it is wanted.

CHAP. XVI.

The moſt ſuitable lands and climate for lucerne, with remarks thereon &c.

THOUGH the lands of England, Scotland, and Ireland, are generally pretty good, and naturally given to graſs; yet I dare venture to ſay, that more than three fourths of all theſe kingdoms are not proper for lucerne.

The farmer that propoſes to cultivate this plant, muſt firſt duly conſider its nature; that it is a native of a warm climate, and that it has a long, groſs, taproot, which runs perpendicular; therefore feeds chiefly from the under-ſtratum, perhaps at two or three feet deep.

Then again, let him turn his eye on his land, and ſee if it be of a deep, rich ſoil; if the under-ſtratum be a loam, or limeſtone gravel, or a deep loamy ſand, or a warm rich gravel, or a blark hazle earth: if it be any one of theſe, he may venture to ſow his lucerne thereon, provided he plough deep, and till well.

However, in moſt parts, I am afraid he will find, inſtead of the above, a ſtrong clay bottom, at about four or five inches deep, which is of a ſolid, cloſe, hungry nature, that will not admit the root of a plant to enter; nor has it any nouriſhment that a plant can feed upon, without firſt being opened by tillage and the air.

And what ſtill adds to the evil, is, that it holds water like a diſh, will not let it ſink through, but keeps it ſwimming on the top amongſt the ſod, ſurface or upper-ſtratum all winter; ſo that if cattle tread thereon, it immediately works, or poches to mortar.

Then certainly ſuch land cannot be ſuitable for a plant of ſuch a tender nature, and which ſeeks its nouriſhment ſo deep.

In ſuch land clover has the advantage; as it requires not ſo deep land, becauſe the root runs horizontally, and keeps near the warm ſurface.

A farmer ſeeing the nature of the plant, and the land ſuitable thereto, may ſquare his affairs accordingly, in ſuiting proper crops to proper land.

A voluminous writer tells us, that the lands of England are more ſubject to run to natural graſs, than any other country whatever; inſomuch, ſays he, that it is with great labour and expence we can keep it from getting head of the lucerne, and ſpoiling the crop.

This I grant is the caſe; and this alone is ſufficient to ſhew, that, in general, lucerne is not ſo valuable in theſe graſſy countries, as in dry hot ſandy countries; where natural graſs, or any other plant that roots ſhallow, is burnt up.

By ſaid author's expreſſing England to be the moſt graſſy country, I ſuppoſe he was a ſtranger to Ireland, or he muſt have excepted it; and why it ſhould be ſo, is eaſily accounted for, as it is occaſioned by the moiſtneſs of the climate, and the coldneſs of the ſoil peculiar to this kingdom.

It has a cold clay ſoil, and intermingled here and there with loughs, lakes, moraſſes, or bogs, the damp from which is exhaled by the ſun, therefore ſoftens the air, and again deſcends in thick miſts or fogs, heavy dews, and ſmall rains, which always keep the land wet, the graſs green and in a growing ſtate.

The rain is never ſo heavy as in England, but much more conſtant.

But England has few bogs, lakes, or loughs in her, therefore the air is more clear and dry.

The rains of England fall ſeldomer, but much heavier.

Alſo the winter-froſt, and the air is ſharper and more intenſe.

All theſe conſiderations muſt ſhew that Ireland is the moſt graſſy country of the two.

CHAP. XVII.

How to manage ſaintfoin, and its perfection.

SAintfoin is a valuable graſs, and particularly where land is rocky, gravelly, or ſandy; and, though in general, clover is the beſt crop for this climate, yet ſaintfoin may anſwer in ſome places very well, where the land is ſubject to rocks and ſtones, which makes meadow very ſcarce, (though the ſummer-herbage is good and plentiful) as the ſoil amongſt theſe rocks is naturally good, where it can be cultivated, ſo as to be brought to any tolerable tilth.

On ſuch ſow ſaintfoin; and if the ſoil be ever ſo ſcanty, it will ſtrike into every ſmall nich or crevice, and ſeek its nouriſhment very deep, where no other graſs will live, or indeed can get a footing.

It is alſo good for ſoiling cattle; but in this lucerne has the advantage, as it is of a quicker growth, and leſs ſtagnated with cutting; but as I before obſerved, this is of little ſignification to England or Ireland, as they abound with good ſummer-herbage.

It is winter-feeding that we are to conſider, as alſo to keep the land in full profit till the return of natural graſs, after long tillage; and this is beſt effected by the two graſſes, clover and ſaintfoin; clover for the wet and ſmootheſt land, and ſaintfoin for the ſandy, rocky, or more ſtony parts thereof, ſuch as the wolds in Yorkſhire, or Lincolnſhire, Chiltern hills, &c.

As I have, in a few words, given the virtues of ſaintfoin, I ſhall not make a long chapter on the management thereof; as there is little alteration to be made between the raiſing ſaintfoin and lucerne, or clover.

Saintfoin may be ſown earlier than clover, or lucerne, as it is in leſs danger of being hurt by the froſt.

The land muſt be well tilled, whether it be ſown alone, or amongſt corn: if it be ſown amongſt corn in the broad-caſt method, harrow the ground once in a place, after the corn is ſown, before the ſaintfoin is ſown.

This will make the ground a little level, that it may not be buried too deep in places. Yet, as it is a large husky ſeed, it muſt have a covering, or it will not grow; but by being harrowed in when the land is pretty rough, it will be all ſufficiently covered, provided it be well harrowed after.

If it be ſown in drills amongſt the corn, ſtretch a line and ſcatter the ſeed along it, leaving intervals, the broadeſt about three feet, and the narroweſt eight inches, as directed for lucerne.

If it it be ſown by itſelf, it muſt be got into the ground by the firſt of March.

Some will ſow it at Michaelmas, but I do not think this a good time, for it will not be a great deal earlier, beſides, a ſevere winter may hurt it; and it is further to be conſidered, that by keeping it out of the ground till ſpring, the ground can be winter-fallowed, which will add greatly to the fertility thereof.

If it be ſown in drills, and alone, ſow it in every ſixth and eighth furrow, as directed for lucerne; but have a care, not to cover it above an inch deep, at the moſt.

Four buſhels of ſeed are generally uſed to an acre in the broad-caſt, but half a buſhel in the drill way, is full enough for an Engliſh acre.

Lay up the ſaintfoin for hay about the firſt of March, and it will be in bloſſom about the firſt of June; when it is full in flower, it is time to mow it; manage it in making, as clover.

Obſerve in eating it with ſheep, not to eat it too near, which will damage the root, and put it in danger of rotting, if they enter upon the head of the root; it is alſo dangerous to turn large cattle into a crop of ſaintfoin, till it is well eſtabliſhed in the ground, as they will be apt to tread it up and ſpoil the plants.

The beſt method to manage ſaintfoin is, to mow the firſt year, and caution the ſitheman, not to cut too near.

The next year, ſheep may very well be fed on it; and after this it may be paſtured or mown at the farmer's diſcretion, as the roots, by this time, will be well eſtabliſhed.

CHAP. XX.

On Rye-graſs, its perfection and management.

RYE-graſs is a native of our own kingdoms: its quality is ſuch, that it will grow in almoſt any kind of land.

In cold clay, or wet land, it flouriſhes greatly; it will alſo grow well on high, dry, or ſandy land; which is very extraordinary, as the oppoſite extremes are ſo great.

It is not nice, for it will grow amongſt any ſort of graſs; it will alſo encroach amongſt corn, but while it is ſtealing its footing there, it is deemed a weed, and is known by the name of darnel.

It flouriſhes greatly by culture, and will grow to the height of four feet, upon good land.

The ſeed alſo grows large in proportion, and full of meal.

There are two ſorts, one called droke, and the other darnel, in Latin, *lolium*.

They are both of nearly the ſame quality: there is no knowing the ſeeds aſunder, they are ſo nearly alike; the droke has a little larger or fuller grain, and I think is ſomething more delicate in its growth, for it generally flouriſhes beſt in tilled ground, amongſt corn.

It produces a far greater head of ſeed than darnel. I have counted a hundred and thirty-five ſeeds in one ear.

The ears of droke and darnel differ conſiderably.

That of darnel, or rye-graſs, grows cloſe to the ſtalk; in two rows, but droke has a ſpread, ragged head, of many branches, of five or ſix inches long, ſpreading from the main ſtalk, on the end of which branches the ſeed grows in bunches.

There is the ſame diſtinction to be obſerved in common hay-graſs, as to the form of the ear; for though the root, ſtalk, and ſeed are nearly alike, yet the ears differ, ſome having an ear like darnel, and others a looſe, open, ſpread ear, like droke.

The greateſt virtues of rye-graſs are its early growth, and its good quality of growing on any ſort of land.

Theſe two excellencies ſhould induce every farmer to provide himſelf with ſome of it.

There is no farmer but would be glad of a piece of early graſs to feed lambs on, or if he had not lambs, to turn in his cows that are generally dropping their calves in the ſpring, which would be greatly forwarding their milk.

It is alſo excellent feeding for recruiting calves and foals, who have hardly eſcaped the ſeverity of the winter.

In ſhort, a few acres of rye-graſs would be of more value to a farmer, than he can well conceive; and when his natural graſs-paſture comes to a head, he may lay up his artificial graſs-land for hay, and not doubt of a good crop.

Rye-graſs is alſo wholeſome feeding to mix among clover-ſeed when ſown, as it will help to prevent cattle from hoving.

However, though I have ſaid ſo much in ſetting forth the advantages of rye-graſs; yet it is not without its fault, and this is, its being an impoveriſher of land, though not in a very great degree; for a crop of rye-graſs, with the land laid down in heart, will hold good for ten or twelve years.

Your beſt œconomy is to mow it one year, and graze it another, alternately; and though it may be its property to reduce land a little, I do not think a farmer can ſow a better crop, provided he does it with diſcretion, and ſows it on his ſtrongeſt wet clay land, or where c lover will not ſuceed ſo well.

But where clover will thrive, it is ſurely preferable to all other artificial herbage; and if I recommend rye-graſs, it is only for about five or ten acres in a hundred, to be applied chiefly for ſpring-feeding.

The culture of rye-graſs is very ſimple and eaſy.

It may be ſown amongſt corn with any ſort of graſs-ſeed, or by itſelf, as there is no doubt of its growing.

If it be ſown with clover and barley, which is the beſt management, ſow two buſhels on an Engliſh acre; but if it be ſown alone, four buſhels is the compliment, and ſo in proportion for an Iriſh or Scotch acre.

The old broad-caſt way is the beſt to ſow it in; for which chuſe a calm day, leſt it ſhould blow on heaps, as the ſeed is light.

It may be ſown with the corn, for it will take as much harrowing, being a light ſeed.

Neither is there much fear of burying it too deep; and yet it will grow if it lie above ground.

Where graſs-land of any ſort is too thin, rye-graſs, or white hay-ſeeds, may be ſown on the ſurface, and rolled, and they will grow the firſt rain.

The greateſt care muſt be taken to mow rye-graſs in the proper ſeaſon, if no regard be paid to the ſeed.

The time to mow it is at the firſt ſhooting of the ear, when it is full of ſap; but if it be for ſeed, let it ſtand till the ear begins to turn brown.

There is a medium, however, to be uſed between both; and that is, to mow it when the ear is full, but the ſeed not above half ripe; by this a good deal of juices are catched in the ſtalk, and the ſeed ripens and hardens as the hay is making.

The ſeed will be ſmall but ſound, and will grow very well; it muſt be threſhed like corn to take the ſeed out.

An Engliſh acre may produce upwards of thirty buſhels of ſeed.

CHAP. XXI.

The perfection and management of burnet.

THE world is obliged to one Mr Bartholomew Roque, who has, for many years laſt paſt, been a farmer near London, but is a native of France.

I mention his place of abode, becauſe the lands and climate near London, differ greatly from thoſe in Ireland, Scotland, and the north of England.

In 1761 was the firſt time that this plant was cultivated for the uſe of cattle; it is a pimpernell, and commonly cultivated for ſallad, has a ſmell very like green cucumber; its ſeed is rough, like ſpinage, and much about the ſame ſize, its ſhape is a triangular oblong; the plant never grows high, being of a ſpreading creeping nature, and has a very buſhy top; it alſo has a long root, and runs perpendicular, therefore requires a deep ſoil.

Mr Roque's account of it, is as follows:

Says he, it muſt be ſown on ſandy or gravelly ground, and the longeſt drought will not hurt it; it alſo will either grow or keep green all winter; it will grow to about half a yard long in the winter half-year; it may be mown twice in the ſummer, and will produce two crops of ſeed; it may be fed all winter with ſafety from killing the plants; ſheep muſt not be allowed to crop it too cloſe, leſt they damage the root.

The ſeaſon for ſowing it is from February to July.

It will bear tranſplanting, but it muſt be ſown the broad-caſt way; it muſt alſo be trenched two or three ſpades deep; but take care, ſays he, not to turn up dead ground.

Sow twelve pounds of ſeed on an Engliſh acre, harrow the ground before ſowing, and lightly after; when the ſeed is ripe threſh it between wet and dry; the hay is very good feeding for all ſorts of cattle.

He ſays that if it be laid up for meadow in May, it will be ready to cut for ſeed the beginning of July.

If it be mown for hay (having no regard to the ſeed) it will bring three crops in a year, and muſt be cut for hay, juſt before it begins to flower; it muſt be made for hay like any artificial graſs.

Such is Mr Roque's account of burnet; and as he has a right to know better than any other perſon, being the firſt introducer, I ſhall neither add nor diminiſh from his experience.

However, I cannot help taking notice, that if we cannot raiſe burnet to perſection without digging two or three ſpades deep, (as he directs) I am afraid the expence will overbalance the profit, ſince an acre of ground by ſuch digging or trenching, and that only once over, will coſt about ſix pounds, beſides ſeed, manure, land-rent, and all other expences.

Again, if we be to take care, and not turn up any dead ſoil, we muſt not go above five or ſix inches deep, becauſe, in fact, all that lies below the upper-ſtratum or corn-mold, is dead earth, till it is turned up to the air, and incorporated with manure, or roots of ſome ſort or other; for theſe are the principles that muſt enliven, ferment, and bring it to an active body, for till then it is a dead one.

So that, in ſhort, I cannot tell what ſort of ſoil Mr. Roque expects us to work in, except in garden-mold, whoſe upper-ſtratum or ſurface is kept two or three feet deep by conſtant trenching.

I rather think he ſhould have told us to take care and not throw up the underſtratum, except it can be done with ſafety; not to hurt or ſpoil the corn-mold, which it certainly muſt do, if it be a hungry, cold, red clay, or ramill.

If this be the caſe, as doubtleſs it is, the farmer muſt firſt examine how deep the ſtaple of his land is, and fix upon that which ſuits it beſt, being the good deep ſort; it is true a ſtrong clay-bottom may be made to anſwer for it, but it muſt be by the dint of labour and manure.

CHAP. XXII.

On different kinds of manure.

MR Tull tells us, (and very warmly ſupports his aſſertion) that dung is a uſeleſs article to a farmer, particularly in corn-land, and recommends tillage before it: daily experience tells us, he was in ſome degree miſtaken, which I admit, and am as clearly ſatisfied, as he could be, that ploughing will enrich or fertilize land to a great pitch; yet I am well convinced, that dung, manure, or compoſt of any ſort, which bear a proportion of ſalts or fertilizing oils, will cauſe a fermentation, by adding to, and mixing with the ſalts of the air, and therefore doubtleſs it adds to enriching the ſoil.

Again, though reaſon ſpeaks ſo much in favour of enriching the ſoil by ploughing, and though Mr Tull, and all the authors in the world were to make it as plain as one and one make two, that tillage is ſufficient to make poor land rich enough to produce any crop, yet nine tenths of the farmers would not follow it; and though a farmer may give his land a good dreſſing, fit for any crop, by twelve ploughings, at about thirty ſhillings expence; yet he would rather beſtow three or four pounds an acre in manure to put thereon.

So blind is man to his own intereſt, particularly if it lead out of the old road.

For my part, I am of Mr Tull's, and ſeveral other authors opinion, therefore ſhall not manure corn-land, but enrich that by ploughing, and lay the manure upon graſs land; where reaſon tells us it is of the moſt uſe.

Firſt, becauſe graſs-land lies in a cloſe conſolidated body, therefore is deprived of the enriching qualities of the air penetrating there amongſt, which ploughed land enjoys or receives every time it is turned up.

Secondly, it nouriſhes the roots of graſs, and ſuppreſſes or at leaſt retards the growth of moſs.

Thirdly, it is obſervable, that manure

always ſinks, therefore if it be laid on when in tillage, it is an equal chance, but one half of it will be loſt, becauſe what the plough turns to the bottom of the furrow, ſtill keeps ſinking lower and lower, till it gets out the reach of the plough to turn up, or plant to feed upon; but on the other hand, when it is laid on the graſs, or lay-land, it drains through the ſurface in its paſſage, ferments with, and lightens and opens the earth, and makes it rich and mellow.

Fourthly, dung in particular, breeds weeds, flies, worms, &c. which cauſes ſmut and mildew.

All theſe reaſons muſt appear very plain and obvious to a farmer's underſtanding, and which I would have him to bear in mind; and when he reads over the following liſt of manures, he may the more eaſily determine with himſelf, how to adapt this or that to its proper ſoil, or part of husbandry, according as it ſuits his conveniency for carriage and cheapneſs.

CHAP. XXIII.

ANY thing that has the moſt ſalts or nitre, is the richeſt manure, and therefore a leſs bulk is required to be laid on the land.

As for inſtance, ſome ſort of marle requires to be laid nearly as thick as the plough goes, and others not much thicker than lime, being ſo ſtrong, that were too much laid on, it would overpower or deſtroy the land, to ſuch a degree, that nothing would grow well for two or three years after.

Marle will laſt longer in the ground than any other manure.

I have known land which has given

fifteen good crops running, after being well marled.

Few farmers but what may know which is the beſt manure, and the eaſieſt come at, according to their own ſituation; therefore ſhall leave them to judge for themſelves, which ſuits their purpoſe or ſituation beſt.

Horſe and cow dung is good almoſt for every ſort of meadow-land, but I do not approve of it for corn; the former is the hotteſt in nature, therefore muſt (to chuſe) be laid on the coldeſt land; every one knows beſt what condition his land is in, whether rich or poor, for thereto it muſt be ſuited in quantity.

Pigeon-dung is a very rich manure, and will bear land-carriage better than moſt others, as a little will go a great way.

In England it will ſell from ten to thirteen pence per buſhel, forty of which will give an Engliſh acre a good dreſſing; it muſt be ſown upon the ground, and harrowed in with the grain, by the way of a top dreſſing; it will be found to enrich the land two or three crops.

Thoſe that would make the moſt of a pigeon-houſe, ſhould ſpread over the floor, every ten days, three or four buſhels of aſhes, which will help to keep the pigeon-dung from caking together, and make it ſpread even, and go farther.

Hen or fowls dung, of all ſorts, ſhould be mixed with aſhes, for the above reaſon.

Little-houſe dung is one of the richeſt of manures, but the leaſt regarded, on account of its ſoft, ſtinking, nauſeous quality; but this is eaſily cured by throwing a ſufficient quantity of roch-lime into the little-houſe, which will dry it to ſuch a conſiſtence, that it will ſpread as well as aſhes, and have no diſagreeable ſmell.

Thirty buſhels wil ſpread an Engliſh acre; harrow it in with the corn by way of a top-dreſſing, or ſpread it on in February for a wheat-crop.

Soot is a rich manure for any kind of land.

Writers differ greatly in their opinion, whether coal or wood ſoot be the richeſt or beſt; but this is throwing words to the wind, as no one will change his fuel for the ſake of the difference in the ſoot; the matter is ſo trifling, that it is not worth entering into any particulars about it.

Soot is ſoot, and he that lays ſixteen buſhels on an Engliſh acre, of any ſort of ſoot, gives his land a good dreſſing, and leſs will not do: it muſt be harrowed in with the corn, by way of a top-dreſſing, or it may be ſpread after the corn comes up, and it will deſtroy red worms alſo.

It will do very well for meadow, provided it be laid on juſt after the hay is got off: it will laſt five or ſix years ſo as to anſwer for crops.

Aſhes is another good manure for a crop or two, and particularly for turnips, as turnips from burn-beating are the ſweeteſt and beſt of all others.

Aſhes are raiſed by ſeveral means, and from various principles.

Some by burn-beating, others from our conſtant firing, ſuch as coal, turf, or wood; the richeſt of theſe is wood, the next in value is turf, and the worſt of the three is coal; though between turf and coal there is no material difference; all ſorts of aſhes loſe much of their ſtrength by being thrown out of doors to get wet; they will laſt in the ground two crops.

A hundred and ſixty buſhels of wood-aſhes, and two hundred and twenty of either turf or coal, is the due for an Iriſh acre, and ſo in proportion for an Engliſh one; they muſt be harrowed in, but if for wheat-land, it is beſt to ſpread them by way of a top-dreſſing in February.

Burnt clay, or backs of ditches, is another forced manure, and will bring one good crop; about three hundred and twenty buſhels on an Iriſh acre, being two buſhels to each ſquare perch, will give land a tolerable good dreſſing; this muſt be harrowed in with the corn, as ſo much carriage going on wheat would ſpoil it.

Now I come to treat of the mother of all manures, namely, ſalt; for every ſort of manure is higher or lower in value, according to the ſalts it produces; and every ſort of manure is proportioned to the land according to the quantity of ſalts or nitre it is thought to have in it, and not to the bulk.

Formerly ſalt was thought to be an impoveriſher of land, but experience has taught wiſdom; it is now found to be otherwiſe, provided it be duly proportioned to the ſtate the land is in, and mixed to mollify it as follows, viz.

Take ſix buſhels of ſalt, ſix buſhels of lime, and ſix buſhels of dry aſhes; mix all together, let them lie ſome time to incorporate together, then ſpread them on the land, and harrow them in with the ſeed; this is a ſufficient dreſſing for an Engliſh acre; for it is better to repeat it, than to lay too much at once.

By being thus mixed, one particle incorporates and mollifies the other; ſalt in itſelf is rather too ſevere and harſh in its nature, and if laid too thick on, might prove of bad conſequence; whereas, if conveyed into the earth by a ſoapy ſmooth method, will prove the very enricher the earth wants to ſend forth vegetation; this will laſt for three crops.

I am convinced, if a farmer was to mix ſalt with any ſort of earth or manure, and let it lie long enough to incorporate, he might lay it on thinner in bulk, in proportion to the ſalts it contained, and he would find his ends in ſo doing.

Sea-weeds, ſhells, fiſh, ſea-water, ſea-ſand, all theſe bear a proportion of ſalts or nitre, therefore muſt be eſteemed a manure though ſuch will not laſt more than two years in a tillage-crop.

Old rags, rotten ſticks, or in ſhort any thing will make manure, that will rot or putrefy, for by ſuch comes on a fermentation with the earth; and by croſſing nature in any caſe, makes it work, ferment, and divide the particles of each other. Even taking one piece of ſoil ten or fifteen perches from its native ſpot, and mixing it with another piece in the ſame field, will ſet it a working, ſo that one will help the other in fertility.

Lime is a manure known by every one, though but few know rightly how to proportion it to the land, as ſome land will require more by twenty buſhels an acre than others; and on the other hand, a hundred buſhels of ſome lime will be ſtrong, and give the land as good a dreſſing as an hundred and thirty of others.

A farmer muſt conſider all theſe circumſtances before he can be a thorough judge how to dreſs his land properly; he muſt obſerve, that the deeper the corn-mold is, the more lime it takes to enrich it; and indeed this is the caſe with all ſorts of manures, therefore he muſt bear this in mind; it will laſt eight or nine years.

An hundred and ſixty buſhels being one on every ſquare perch, are ſufficient for the worſt land in England at one dreſſing; but if the lime be ſtronger than common, lower the quantity thirty or forty buſhels. The ſtrength of the lime is known by the quantity of ſand it contains, for the more grit or ſand, the weaker it is.

The way to try lime-ſtone is by dropping a little aqua-fortis on every ſtone, that is likely; and if it hiſſes and froths, it will make lime; but it will take no more effect on any other ſort of ſtone than water would.

Lime is one of my favourite manures, as I have ſeen it work miracles, and, if properly managed by proportion, never fails its proprietor.

The beſt way to try marle, lime-ſtone gravel, &c. is with vinegar: take a glaſs of vinegar, into which put a little marle or lime-ſtone gravel; and if it be good, it will work up, froth, and fly in ſparks over the glaſs like champaign, and make a noiſe like new barm; but if the earth be poor the vinegar will take no effect, but the earth will fall to the bottom without life or motion, and the vinegar will be fine above it.

Soaper's waſte is a very good manure; about twenty tons are ſufficient for an Engliſh acre.

Large quantities are made uſe of about Liverpool, which is taken over from Dublin for ballaſt of ſhips.

They generally ſell it for about three ſhillings a ton. The land will receive benefit from this dreſſing for five or ſix crops.

Aſhes made of weeds, for the time it will laſt, is nearly as good manure as can be laid on land, and there are few farmers but have plenty of it about their houſes; but the way to make the moſt of them, is to dig them up by the roots, and take a ſod along with them; by this they will make a greater quantity of aſhes, and the roots are fuller of ſalts than the top; this is ſpent by the firſt, therefore the ſecond crop will not receive much benefit from it.

Forty buſhels will give an Engliſh acre a good dreſſing; harrow them in with the grain, or they may be ſpread on green wheat any time in winter or ſpring, by way of a top-dreſſing.

The compound of manures as follows, I have tried, and find to be a great enricher, and very cheap, viz.

Take eight buſhels of bay-ſalt, the like quantity of lime, and the like quantity of aſhes; mix all theſe together, and let them lie two or three days in a heap.

If you intend it for corn-land, throw up the corn-mold in the middle of the field you intend to manure, to the bulk of about ſixty buſhels, with this mix the compound well, then clap it up cloſe in a heap, and turn it every week till you lay it on the land; the oftener you turn it the better, as the air will aſſiſt the different particles in working or fermenting together.

If you provide it ſix or twelve months before it is wanted, the better and ſmoother it will be.

This is alſo to be applied as a top-dreſſing, either to be harrowed in with the grain, or ſown over green wheat in winter.

If you would lay it on lay-land, mix it with backs of ditches, or the like, in the moſt convenient place for carriage; the beſt time to ſpread it on the meadow-ground is about Michaelmas; but if corn-land, harrow it in with the ſeed; this a due quantity for an Engliſh acre.

The expence in the middle of England would be about twenty ſhillings. And the ground will be better for three or four crops.

Malt-duſt is an exceeding good manure for ſtrong or deep land by way of a top-dreſſing, either to be harrowed in with the ſeed, or ſown on in the begining of February.

Sixty buſhels is a good dreſſing for an Engliſh acre.

It is particularly good to ſow on a crop of green wheat; but if it be ſown among ſpring-corn, it muſt be harrowed in along with the ſeed.

It will anſwer for ſand-land, but in this caſe it ſhould be laid on early in winter.

This manure will not laſt longer than two crops.

CHAP. XXIV.

On Liquid Manure.

THIS is a ſtagnated reſervoir of water, of a rich green, or blackiſh colour; and few farmers in England but what have it near their houſes by way of horſe-ponds, and where cattle drink or ſtand to keep them from flies in ſummer, which by their urine and dung is turned green or black, and made very rich; alſo where dung-hills diſcharge themſelves into, as there is generally a receptacle for ſuch near a houſe.

I am greatly ſurpriſed to ſee this valuable manure made no uſe of in England, Ireland, or Scotland; did the farmers know the value of it as well as I do, they would not have one gallon loſt.

In Germany and Flanders they think more of it than they do of a dung-hill, and will go and buy a pit of liquid manure, and carry it ſeveral miles.

They make their little-houſe dung into liquid manure.

In ſhort, I know no manure that is more certain to give one a good crop than this.

The firſt time I tried it was in watering a garden out of a horſe-pond which the dung-hill dripped into; I found a ſediment at the bottom, which I conſtantly, at the time I was uſing it, kept ſtirring from the bottom, ſo as to raiſe all the ſediment or manure.

I never uſed any other dung, yet I had remarkable great garden crops; ſuch lettice I never ſaw; my goſs lettice was like cabbages.

I watered my wall-fruit, ſuch as peaches, nectarins, apricocks, figs, vines, and cherries; and I never, in my life, either had or ſaw ſo great crops.

The next time I had an opportunity to try it was in this manner, viz.

It happened to be a dry ſummer, and corn was dear, which was the occaſion of many beggars, which, indeed, Ireland never wants, (for it was in Ireland) being naturally of a charitable diſpoſition, I gave a deal away.

When ſturdy able beggars uſed to come, it was natural to ask why they did not work; the anſwer was, they could get none.

At this time I had little employment for labourers, however I was reſolved to ſtrike out ſome work for them. I had a meadow near the houſe which was burning by the heat of the ſun, for it was a very hot time.

I got tubs that held about four gallons each, and agreed to give every beggar that ſaid he wanted work, a farthing for every tub of water he carried out of a horſe-pond, and ſpread over the field; I kept the water always ſtirring, to raiſe all the mud I could.

This ſcheme anſwered two or three good ends, as far as it continued to take place.

Firſt, it got the people a little money.

Second, it raiſed me an exceeding good crop of hay.

Thirdly, it effectually cleared the houſe of beggars; for it was ſoon reported, that if they came near my houſe, they would be made work; but, as it proved, this was the worſt part of the ſtory, for they left me too ſoon; if they had ſtaid, I ſhould have had a good crop of hay thro' the field, but they left me by the time an acre was manured; it coſt me between four and five ſhillings; but a good many tubs were carried gratis, for when ſome of them, had carried two or three tubs, if I turned my back, or went into the houſe, they threw down their veſſels, and ſneaked off without asking for their wages.

I would adviſe every gentleman or farmer to provide themſelves with a ſtanch pit, or reſervoir, for this purpoſe, ſo ſituated as to receive all the drippings of their dung-hills, hog-yards, and waſhing-water, or the like.

In order to carry it on the land, fix a hogſhhead in a cart, the hind part of which muſt be loweſt: incloſe the cart with boards, and the hind board muſt be bored full of gimlet-holes all the breadth of the body; the top or bung-hole of the hogſhead being behind, let go the water, and the gimlet holes will divide it the breadth of the cart, in the nature of a watering pot.

Keep the horſes moving ſlowly on,

and the water unlades itſelf equally over the land.

Carry out your water in the firſt dry time, ſo the land will not cut; it is valuable for graſs or corn: broad wheels are properest for this work.

CHAP. XXV.

On clay and ſand; ſhewing when mixed together, how they operate to make good ſoil, though when ſeparated of very little uſe.

THE moſt deſirable ſtate of land, is that of a loamy clay; it is known in ſome parts of England by the name of warp-land; it is in a middling ſtate, neither a binding clay, nor a looſe ſand; it is a mixture of both, but the clay is moſt predominant, which is the reaſon it is called a loamy clay; it is of a bluiſh greaſy colour; it is generally of a deep ſtaple, and if it be well tilled, ſcarce ever fails of bringing a good crop of any ſort; nothing can be ſown in it (ſuitable to the climate) but it will make flouriſh.

The next in value is that of a loamy ſand; this is alſo a mixture of clay and ſand, but in this the ſand is moſt predominant, therefore the emphaſis or ſtreſs of the word is laid on ſand; this ſtaple of earth extends itſelf to that of haſle earth; for though haſle earth and loamy ſand differ in name, its quality is nearly alike; only the lighter and opener it is, the more ſand is in the compound.

Sometimes, indeed, the ſand is mixed with a black, light, ſmooth earth, inclined to a turf, or peat mold.

This is a light water-ſhaken earth, and lower in value, than if mixed with a ſtrong clay.

In my travels through England I have often ſeen a farm, that one part was a ſtrong, tough, obdurate clay, and another a light, blowing ſand; ſo that, in fact, the two bodies, ſeparate, lie in a barren, uſeleſs ſtate; if we lay dung upon the ſand, its looſe, open nature ſoon admits the ſalts to drain through it, ſo that its virtue is not valuable more than one crop or two; if we lay it on the tough clay, its particles are too weak to adhere to it, or open or divide the ſolid congealed body of clay, ſo as to work it by fermentation, and open or divide it into ſmall particles without an immenſe quantity.

And where there is ſo little laid on, as not to eſtabliſh itſelf into this conſolidated body, or move it by fermentation, it melts away with every ſhower of rain that falls, and runs off by the ſurface, or purges itſelf out of any vent hole it can find.

But if a coat of ſand was laid on the

bed of clay, it would be ſure to make its way amongſt it, becauſe it is of a cutting, ponderous, ſearching nature, therefore it will divide the glutinous clinging body of clay into ſmall particles, which would cling or ſtick to every grain of ſand.

The nature of the two bodies mixing together thus, admits, or rather opens a paſſage for the air to penetrate amongſt it, ſo cauſe a fermentation; for nothing will or can ferment without air.

It is the air that raiſes every thing to life and action; it is the air that is conveyed into drink in the body of barm, that makes it work, or ferment; this is the caſe in flour alſo, for by conveying the air among the flour by the means of the barm, cauſes a fermentation, for barm is ſcarce any thing elſe but [air; you ſee if you put new ale into bottles before it has purged itſelf of barm, or, more properly ſpeaking, air, it will burſt the bottles.

Or if you drink it, you convey among the body of the drink, air into your own belly, which you generally diſcharge ſoon after in a breach of wind.

I mention theſe things to open the ideas more fully to my reader, that he may know what I mean by fermentation; for if he do not open a paſſage into the body of clay with ſome inſtrument or compound, ſo as to admit, or make a paſſage for the air to penetrate therein, to raiſe it to action by fermentation, it will remain a dead inactive body; and if any ſeed happen to be bound, or incloſed therein, it will never grow or vegetate, till the earth is opened about it to give it air.

I ſay, any ſort of ſeed that contains an oily matter, ſuch as rape-ſeed, cabbage-ſeed, turnip-ſeed, ketlock-ſeed, muſtard-ſeed, or the like, will lie in the ground a thouſand years or more, and will neither rot or grow till it gets air.

The oil preſerves it from rotting, and grow it cannot without it be raiſed to action by fermentation, and ſuch fermentation cannot ariſe without air.

This is evidently experienced almoſt every day; for if we plough up a piece of lay-land that has not been ploughed for ſeveral generations, there is great odds, but, upon being turned up, ſome of theſe oily ſeeds I mentioned will grow, and it is evident that they would have grown before if they had had air.

I mention theſe things to prove how neceſſary it is to open the earth either by tillage, or mixing different bodies of different natures together.

And as we ſee that loam is the beſt ſort of corn-mold, how eaſy is it to make a loam by mixing ſand and clay together?

If a field be a ſtrong clay, lay a cart-load of ſand upon every ſquare perch, and this will make a compound or body of earth, commonly called loamy clay, becauſe clay is the predominant article.

This will open and divide the body of clay, the air will incorporate therewith, and bring on a fermentation, which will ſwell, open, and reduce the earth to a friendly conſiſtence, which will admit the roots of plants to incorporate or ſearch among it for their food.

Suppoſe a field be ſand, it is of little uſe perhaps to its proprietor, as it will not feed either the roots of corn or graſs; that is, it is of too open a nature, and wants a ſlimy, ſmooth, glewy ſubſtance, (ſuch as clay conſiſts of) among it, to unite the gritty, pebbly particles of the ſand together, which before was each a caliſed, hard, ſeparate body, out of which iſſued no nouriſhment for plants, as the grain or ſtaple was too coarſe or large for the fine fibres of a root to feed upon; but when clay is introduced amongſt it, the ſlimy, ſmoother particles thereof wrap round or clag about the grains of ſand, which being aſſiſted by the air, and the ſalts thereof, divides theſe little ſtubborn round bodies into ſmaller particles, by ſhelling, or melting ſcale after ſcale from them; ſo that the body of the ſand, and that of the clay, being melted into a thin, fine, ſmooth matter between them, they create a nouriſhing fine food for plants.

Thus farmers ſee how eſſential it is to mix ſand and clay together; a two-horſe cart-load of clay, upon every ſquare perch of ſand-land, would change the nature of the ſoil to ſuch a degree, that it might be called a loamy ſand, which is the ſecond beſt earth.

The above is taking in all ſorts of clay and ſand, as it ſpeaks in general, becauſe a mixture, let it be what ſort it will, is valuable; but however, there are different degrees of both clay and ſand, and where we are ſo lucky as to find on our lands, that which contains the moſt ſalts, it is the greateſt treaſure.

Moſt marles are a ſort of clay, which differ according to the colour and weight of ſalts contained in them.

According to the quantity of ſalts you ſuppoſe your marle or clay to contain, and the depth of ſoil or corn-mold you have to work in, ſo proportionably mix your marle or clay and ſand together.

The blue marle and brown marle are nearly of one ſtrength; they are generally very hard to be dug; ſometimes the labourers are obliged to uſe pick-axes to looſen it with, ready for the ſpade.

Theſe are good ſorts of marle, and to be found in many places in England and Scotland, where they lie diſregarded, owing to their owners not knowing their value.

When they come to be laid on the land and expoſed to the air, they fall to duſt, and melt with rain or froſt; any clay or marle that does this, is ſure to contain a great body of ſalts; for it is theſe that ſhiver and melt the earth about them to come at the air, and the air at them.

A deep corn-mold, and particularly if ſandy, will take about three cart-loads to two ſquare perches, at five yards and a half per perch.

The next marle in quality, and which is moſt ſuitable to ſtrong land is white ſhelly marle; it generally lies under bogs and moraſſes; it is light, but of a very rich nature, has a great likeneſs to lime, and indeed will almoſt go as far as ſlaked lime in manuring; however, it may be laid on at a cart-load to each ſquare perch, without hurting the land, though leſs may do.

The next is a free ſtone marle, it is white as lime, but has no ſhells in it; it is moſt proper for clay; it has a ſharp acid ſpirit, and therefore muſt be laid thin on the land; it is the worſt of all marles.

There are three clays, the blue, red, and white; the beſt of theſe for manure to ſand-land, is the blue, as it comes the neareſt to marle; but they will all melt and open when mixed with the ſand.

CHAP. XXVI.

On clay, ſand, and marle.

THERE are ſeveral denominations of ſands and gravel; of theſe the lime-ſtone gravel is the beſt; it abounds greatly all over Ireland, except the county of Cork.

This is of a very rich quality, particularly if it be of the marly ſort; in fact, it is no other than marle, only that it is mixed with a ſmall blue lime-ſtone, from the ſize of a haſle nut, to a good ſized paving-ſtone, which would all burn and make good lime: it is thoſe that give it the name of lime-ſtone gravel; it is a very valuable manure, and which contributes greatly to enrich Ireland.

A coat of this will change ling or heathy ground, to ſhamrogs or wild clover; it is to be met with in Scotland and England in ſome places.

There is another ſort of lime-ſtone gravel, which is of the gritty ſandy kind, but it is not ſo good as the above marly ſort, it is ſuitable for clay land.

There is a ſort of ſand in Ireland, that is alſo very good manure for ſtrong lands; I have ſeen it in England, but never ſaw it made uſe of.

In fact, the Engliſh farmers are not ſo prying into the bowels of the earth as they ought to be, to find out theſe valuable manures: this ſand is of a rough, round gritty kind, a bluiſh caſt; it abounds much with ſalts; I have ſeen it produce amazing great crops of both corn and graſs, for fifteen or ſixteen years together.

Sea-ſand is another good manure, where farmers are ſituated convenient, ſo that carriage will not bring it too high.

The red or blue ſand that lies on the ſurface of the earth, in many parts of England, and ſuch as we raiſe corn in, is no manure, except to clay-land, as above obſerved; and it is on ſuch land as this that clay is ſo valuable, where marle cannot be got.

Chalk is an excellent manure for clay-ground, and will laſt many years; it is good for ſand, but not of that value as for clay.

What adds to the value of chalk, clays, or marls, as manure, is their laſting ſo long in the ground.

If land be well covered with any of theſe heavy manures, it will ſhew their value, by throwing up good crops for ten or fifteen years.

Such bodies of manure are very ponderous, therefore generally keep ſinking till they get below the plough-gate to turn up: when this happens, it ſhould be trench-ploughed.

The beſt method of liming, marling, claying, or chalking land, is to lay them on the ſod: and let them remain (after being ſpread) for one year or two before the land is ploughed, in order that it may adhere, grow, or incorporate with the earth, which will make it much more valuable and laſting; beſides, the air operates more violently and quickly upon it, by being expoſed thereto, which if it was covered with earth, it would in ſome degree, be ſcreened from it; and it is the air that cauſes it to open and ſhiver to pieces, and ferment with the corn-mold, as will appear more fully in the next chapter.

CHAP. XXVII.

On the weakeſt and worſt of all ſands, or worn-out or tired earth, how to make marl or clay unite thereto, &c. &c.

AS I have ſeen a bad, blowing, white ſand in many parts of England, and particularly in Norfolk, which has baffled all the Norfolk farmers boaſted management to improve, I ſhall beſtow a chapter on this ſort alone, and ſhall think my time well wared, if I can put them in a way to make ſuch land uſeful, as at preſent lies uſeleſs and neglected.

There are two ſorts of what we call blowing, ſand, viz. white and grey, which is of a very ſmooth, fine grain, and deſtitute of any clayey, oily, or glutinous ſubſtance to hold it together, or for plants to feed upon.

Among the many tracts of this ſort in England, I ſhall mention one which lies round Thedford in Norfolk, which tho' the Norfolk farmers imagine themſelves ſuperior to any other for management, yet they confeſs themſelves not qualified to improve this ſort of ſoil, and the reaſon they give, is, that it is ſo poor and weak, that marl or clay will not unite therewith, of which they have great plenty under theſe beds of ſand in moſt parts of Norfolk.

I was told of a farmer near Thedford, who was noted for a better manager than the reſt of his neighbours; I went to view his crops, and was agreeably ſurpriſed to ſee about two hundred and forty acres of barley, that was extremely good, in the midſt of a very ſandy, barren country; in ſhort, one acre might juſtly be under tillage of barley, clover, rye-graſs, and turnips; the clover and rye-graſs ſeldom lie above one crop, or at moſt two, before they break it up again for turnips, therefore they are neceſſitated to marl upon broken ground, except they would lay it upon they clover ſtubble as ſoon as the barley is off, and which, by the bye, is the beſt way, though they have not the leaſt notion of it.

Were they to do this, the ſtubble would keep it up till the young clover grew through, united and incorporated it with the ſod or corn-mold; the froſt would alſo ſhiver and temper the clods, and bring it to a ſeparation; this is one great reaſon why all clays or marls ough to lie on the ſod a year or two expoſed, and to unite therewith.

But, on the contrary, the Norfolk farmers lay it on a looſe, fine, weak ſoil, there it is in clods, tumbled about with the plough in the courſe of the fallow; and as it is a cloſe, heavy body, it is generally covered and ſcreened from the air by the corn-mold, ſo conſequently as the mold about it is a dead inactive body, having no moiſt, or oily matter, ſuch as graſs or clover roots, amongſt it to incorporate, or raiſe into a fermentation, I ſay, for want of theſe aſſiſtances, the dead, weak, light body of ſand, or corn-mold, has not ſufficient ſtrength to adhere or unite with the heavy body of clay, therefore the two parties lie each inactive in itſelf.

This evidently ſhewed itſelf to be the caſe between the above farmer's good crops, and his neighbours ſtarved bad ones, many of which were ſcarce worth reaping, which had been marled on the fallow, though the marl and land were all of one nature; therefore it was plain that his ſuperiority of crops proceeded from no other motive but that of being marled on the ſod, the roots of graſs or other vegitables moiſten and unite the two bodies of earth, and its acid and nitrous nature cauſes a fermentation, which is productive of a mixture and union, that could never take place between two ſuch dead and inactive bodies as the ſand and marl are alone in themſelves.

If it ſhould be alledged, that the freſhneſs or reſt this graſs land had got, by lying ſo long dormant, or in a ſheep-walk, was the cauſe of ſo great a produce in the crops, ſuch a ſuppoſition is anſwered by ſeveral experiments that were tried in the ſame ſort of ground; nay, the ſame ſheep-walk, which neither hedge or ditch parted, viz.

That all the farmers, except he who had the good crops, break up their graſs-land by fallow and ſow it with turnip-ſeed, and two or three farmers particularly had marled upon the fallow, but their crops were not half ſo good as his which was marled on the ſod; and, upon turning up the earth, it was eaſy to diſcover the marl lying in lumps in the ſame inactive ſtate as when laid on; this was alſo the caſe with all the old going corn-land in the neighbourhood, which had been marled in the courſe of tillage. But upon repeated trials, they find it does not anſwer, therefore ſeldom marl at all.

It is a prevailed opinion, and a common ſaying among them, that their land is too weak for marl, that the marl and ſand will not mix or unite together.

An open town-field lay next to the two hundred and forty acres of good barley, the owner of which had ſeveral ridges mixed among his neighbours in ſaid field, ſeveral of which he had marled upon fallow, but had no better crops on theſe than the reſt of his neighbours.

All theſe circumſtances proved, beyond a contradiction, to the opinion of the farmers there, that marl will not anſwer with them but upon graſs-land, which had only been lately tried; for the two hundred and forty acres of good barley was the firſt inſtance, and fourth crop after marling.

It is worth obſerving, that this ſenſible farmer foreſaw the ſucceſs which would accrue from marling the ſaid land on the ſod, as he took a leaſe of the farm at double its former rent, though ſeveral people had been broke on it, but he on the contrary was making a fortune, for the crops I ſaw on the ground, were at leaſt worth ten rents.

He had better turnips than any one elſe, which enabled him to keep a large flock of ſheep; he kept every thing as private as he could, and deſired me to take no notice of what I had ſeen, for which reaſon I ſuppreſs his name.

Many farmers looked upon his crops with wonder, and a longing eye, but partly deſpaired of making his caſe their own, as his land had been ſo many years of coming to a ſod, and theirs was chiefly broken-land.

To ſum up what has been ſaid, all the

above obſervations, as well as reaſon, proves clearly, that though marl is a treaſure when found and applied properly to light ſandy land, yet the ſame obſervations prove, that it cannot be applied with ſucceſs to weak, worn-out land, without ſome ſort of vegitable or graſſy particles to bear up the marl, putrify, keep moiſt, and cauſe a fermentation, in order to mix or unite the two bodies of ſand and marl together; and as it is generally worn out corn-ſoil that ſtands the greateſt need of improvement; and as it is alſo very diſheartening for farmers to wait ſo long for their land coming to a ſod for the ſaid purpoſe of improvement, I refer them to the next chapter, where they will find artificial management will make up for deficiency of time and nature.

So much as this chapter contains, I thought neceſſary to ſay, in order to prove, both by reaſon and precept, the neceſſity there is for the farmer keeping up to the rules laid down in the next, for the improvement of his land, and conſequently of his crops alſo.

CHAP. XXVIII.

On different ſorts of graſs and pulſe, which muſt be ſown before marl is laid on broken, old-going, ſandy, worn-out lands, for the improvement thereof, &c.

SHOULD the reader happen to turn to this chapter before he reads the foregoing one, I would adviſe him to turn back and read it firſt, in order he may more fully be acquainted with the reaſons why I direct, or lay down the following management.

There are few ſandy farms in England but what has beds of marl or clay under one part or other of them, did the owner but apply himſelf for finding them out.

The firſt ſtep he ſhould take, is to view his hedges and trees, as their aſpect of vigour, or runtiſhneſs, generally ſhews the ſort of ground they grow upon: as for inſtance, all tap-roots thrive beſt, where the interier earth is good, though at a great depth under, particularly oak, it ſtrikes its root perpendicular to a great depth to find out nouriſhment, and if a good clay or marl be under, at the diſtance of fifteen or twenty feet, the flouriſhing ſtate of the tree will ſhew it, by rearing up its head high in the air.

One can hardly be deceived in this remark, for though the ſurface appear ſandy for miles round, yet if there be any good oaks growing thereon, we may be aſſured that either a good clay or marl is under, therefore the farmer may apply himſelf to a diligent ſearch near the ſaid trees.

What he wants being found, his next method to take, is how to apply it to his ground; and if his land be of ever ſo poor, light, ſandy nature, the following method will enrich it, viz.

As ſoon as the crop of corn is off, plough the land once, and ſow it with vetches pretty thick, then harrow them in, if this can be a fortnight before Michaelmas the better, that the Michaelmas ſpring may puſh them forward to a good head, before winter; and though the land be ever ſo poor, open, or ſandy, if ſown at this time of the year, it will produce a crop of ſtraw, though perhaps would not have ſtrength enough to ſupport a crop of corn, but ſtraw will anſwer his end.

The vetches muſt not be eat, but as ſoon, as the buſhy ſpring ſeed time is over, the farmer muſt prepare for marling or claying upon them, viz.

He muſt firſt roll the vetches flat with a roller, ſo far as he thinks he can cover with marl the ſame day, but no farther, and alſo ſpread the marl even the ſame night, ſo as to cover all the vetches cloſe therewith, to prevent the ſun or or weather from exhaling or drying out the juicy ſubſtance, which it ſoon will do from any part that is expoſed thereto.

When marl or clay is firſt drawn out of the pit; it is generally wet and tough, but when it has laid a little expoſed to the weather, it ſhivers and falls to powder, particularly if it be of a rich ſort, for then the air opens it to come at the ſalts it contains.

As ſoon as you ſee that the clods are come to a conſiſtence, ſo as to break and ſpread, draw a harrow over the marl turned the wrong ſide up, in order to break and ſpread the marl more even, and cover the vetches cloſe.

The next conſideration is what to ſow it with, and doubtleſs your choice will fall upon ſuch as ſuits your ſtock of cattle, or your opinion of farming, and crops the beſt; but was I to chuſe, it ſhould be ſown with turnips at Midſummer; however whatever it is ſown with, it muſt not be ſtirred with the plough, but as ſoon as the marl is levelled on the ground as above, ſow the ſeed, and ſhovel the furrows, and ſpread the mold you throw out an inch thick all over the ridge.

If you cannot get mold enough without, you muſt either dig a ſpit deep, or run a plough up and down the furrow, in order to raiſe ſufficient of mold for the purpoſe.

Two men will ſhovel an acre in one day, which is cheaper than ploughing, and the work is done effectually, the marl lying between two bodies of ſand, and the vetches being reduced to dung under the marl, cauſes a thorough fermentation and union amongſt them.

If you eat off the turnips with ſheep in the moving-houſes, you compleat an effectual improvement, be the land ever ſo poor or ſandy; in ſhort this is the beſt method that can be taken to improve any ſort of barren, light land by marl or clay.

If clay-land, it will anſwer the end by applying ſand upon it in the ſame manner, only with this difference, that inſtead of vetches you ſow grey peas, which will produce a greater burden of holm for manure.

Roll your peaſe, and when your ſand is laid on, cover them, and the ſand together, by ſhovelling the furrows as above, but the deeper you cover the better. Suppoſe you dig or plough a good ſpit deep, and make a furrow two feet wide, to throw over a ridge ſixteen feet wide.

This is alſo an excellent method to cover in buck-wheat, vetches, or peaſe, or any other crop that is ſown for manure, ſuppoſe you would not lay on any ſort of ſand, marl, or clay.

As for inſtance, if you would ſow wheat at Michaelmas, you muſt firſt ſow your peaſe the latter end of May, or beginning of June; at Michaelmas they will be in full bloſſom, then roll them flat, and ſow your wheat upon them, and trench the furrows as above, covering the ſeed and peaſe together two or three inches thick. Peaſe being covered or ſmothered in their moſt juicy tender ſtate, ferment and rot very ſoon, they will be turned in a maſs of manure in a fortnight, at which time the wheat begins to ſtrike root and feed upon the ground.

This is a very ſure method of getting a good crop, be the ground ever ſo poor, as the ſeed takes root immediately among the manure.

This alſo effectually deſtroys the weeds, and as the furrows are deep and open, it is a good drainage for cold, low, wet land, in ſhort it is the next beſt method to trenching land, and for the firſt crop, perhaps may exceed it.

It is likewiſe a good preparative for ſuch land as may be thrown into the courſe of trench-ploughing, as the furrows are ready open, &c.

Any ſpring crops may be treated in the ſame manner with good ſucceſs.

Six men may trench an acre thus in one day, and cover the ridge three inches thick, but if the mold be looſened with the plough, ſo that nothing but the ſhovel will want to be uſed, it will come much lower.

CHAP. XXIX.

The management, &c. of the white and blue boiling pea.

THIS ſort of pea is chiefly raiſed for the food of mankind, and is uſed for puddings, &c.

It is only here and there we can meet with land ſuitable for this crop: for though it may produce a full crop, and good-looking peaſe; yet if the land be not natural for them, they will not boil ſoft, therefore they are of no value, but for cattle.

The land moſt likely to anſwer for them, is a dry ſharp ſand, or gravel; but experience muſt be the farmer's guide herein; for if two pieces of land be both alike, to a man's thinking, and only an hedge parts them, yet one may bring a ſoft good boiler, and the other not.

The ſeaſon for ſowing it is about the middle of March; it muſt be managed in every reſpect, at the grey pea; it is generally ſold about the ſame price as wheat.

I have known more than once, twenty pounds an acre made by a crop of them; beſides, the crop is generally early enough reaped for the land to ſow turnips on the ſame year; which is another great advantage: cattle do not like its ſtraw ſo well, as that of grey pea ſtraw.

There are two ſorts of this pea, but both nearly anſwer the ſame end; and the land that will produce one a boiler, will not miſs in the other; one is called the blue boiler, being of a bluiſh caſt or colour, and very ſmall and round, and without any dints in it.

The other is called the white boiler, is generally a little larger than the blue ſort; this is alſo round, and is not dinted; it is not quite ſo much valued as the blue ſort.

They are both of the early hotſpur kind; the ſeed muſt be changed every year to chuſe; and that which comes from the ſouth of England, is generally the beſt, the land being, in that country, a very warm, ſandy gravel: the farmers raiſe great quantities to ſend abroad, and find their account in it.

CHAP. XXX.

The management and perfection of the grey field-pea.

THERE are two ſorts of peaſe which may be cultivated in the field with ſucceſs.

Firſt, the common grey field-pea, raiſed for the ſuſtenance of the brute creation, anſwering the ſame end, or made uſe of for the ſame purpoſes, as field-beans.

The next is a boiling pea. I ſhall treat of it in another chapter.

The grey pea delights moſt in a light gravel, or ſandy land: but if ſown with beans, (which will be a codding for them) they will grow with ſucceſs on ſtrong lands; but the richer the land, the greater need they have for ſupport, as their ſtraw grows longer, therefore muſt be ſown thinner alſo.

Sow the pooreſt land you have with peaſe, as they will enrich the land, and on ſuch poor land they corn the beſt; for when the land is too good, they run too much to ſtraw, and the more ſtraw the leſs corn.

Oat or barley ſtubble, if the land be poor, will bring a good crop, provided you give it a couple of ploughings in autumn, and winter; but if the land be in a good heart, you need only plough the ſtubble in, juſt before ſowing.

They may be ſown with ſucceſs, from the firſt of February to the firſt of April; but about the beginning of March is the beſt ſeaſon.

The land being ploughed, ſow the peaſe at the rate of eight ſtone to the acre, Iriſh meaſure: when ſown, water-furrow and grip the land.

This crop muſt not be rolled; in May is the time to weed them.

Peaſe are ripe for reaping, when they turn black eyed within the pod.

If they happen to be a ſhort, ſtanding crop, they may be mown, elſe they muſt be reaped and rolled, or lapped up in round little bundles, like a ſheaf of corn: thus they muſt be left in ſingle lumps or ſheaves, till they are enough weathered and dried for ſtacking, or houſing; but while they are on the ground, they muſt be turned two or three times, leſt the under-part of the ſheaf grow.

CHAP. XXXI.

Directions for ploughing, ſowing, and management of buck-wheat through all its variations.

THE chief uſe of buck-wheat in England or Ireland is for manure, tho' ſome make uſe of it for bread; but it is very ordinary bread, not much better than that of peaſe; it will feed hogs, but peaſe are full as good, and will yield more corn on an acre; beſides, they are a ſurer crop, as they will grow on almoſt any ſort of land.

I will ſay ſo much, however, for buck-wheat, that where it hits, and is a full crop, it is the fineſt thing for manure that I have ever ſeen.

I once had a crop, that when it was rolled down, gave a task to a horſe to walk through it; and the land gained ſo great advantage from this dreſſing, that the proprietor has good reaſon to remember it.

The plant is very luxuriant and predominant over any weeds; ſo that the benefit does not wholly lie in the dung it makes, but in its being an effectual clearer of ground from weeds.

The land that ſuits it beſt is that of a light ſoil, of a ſandy gravelly nature; tho' in truth, (except a very ſtrong clay) any land will bring a crop, provided it be well tilled to a fine mold.

Any ſort of ſtubble that is intended for it, muſt be winter-fallowed, ploughing it early in autumn, in order that it may meliorate with the froſt, &c. and again, as ſoon as it begins to ſhoot in the ſpring, and the laſt time in April, juſt before ſowing.

The middle of April is the beſt time for ſowing it.

When ploughed, before it is ſown harrow it once in a place, in order to level it, that the ſeed may not be buried too deep; then ſow the ſeed at the rate of two buſhels to an Engliſh acre; after which harrow it very fine.

When harrowed, roll it; then you have no more to do with it till it is fit to plough in for dung, which is when full in bloſſom, about Midſummer.

This is done by firſt rolling it down the ſtriping way of the plough; and then plough it in.

If the land be for turnips, as ſoon as the dung is rotten, (which will be about ten days) if it be ploughed in the fullneſs of ſap, or juices, plough it up and harrow it once in a place! a man muſt follow the harrow with a rope tied to it to ſhake it, leſt it drag the dung in heaps. Being thus harrowed, ſow the turnip-ſeed, and roll it after.

But if the land be for wheat, let it lie unploughed till the graſs or weeds begin to grow, then plough the dung up, and in a proper time after, ſow the wheat, and plough it in with the dung.

If you intend the buck-wheat to ſtand for ſeed, treat it in every reſpect like peaſe, as it is harveſted the ſame way.

C H A P. XXXII.

Directions how to raiſe rape and cole-ſeed, and alſo how to manage burn-beating, &c. &c.

I Shall treat of theſe two ſeeds under one management in the ſame chapter: as they are nearly of one quality, all the difference is, that cole-ſeed requires the greater depth of ſoil.

Rape and cole-ſeed are very profitable, where they meet with land that ſuits them, which is a black and deep ſoil; cold ruſhy bottoms, bog, or deep mountain are very good, provided it be duly pared and burned.

For paring and burning, (by others called burn-beating) take heathy, boggy, mountainy, or ruſhy, wet and cold low ground; the more ling or heath, and coarſe graſs, the better.

If it be for reclaiming of bog, follow the directions under that article.

If the ground be deep, and will allow it, pare a ſod two inches thick, in order to raiſe all the aſhes that is poſſible; but before you begin to plough or pare for burning, take a roller ſix feet long; in this faſten three belts of iron, quite round the roller, at two feet diſtance; theſe belts, or rather cutting-knives, as they are to perform this office, are about the breadth of a ſythe, and are to have prongs to drive into the roller, ſo that the edge will ſtand upright.

With this go acroſs the ground intended to pare; which when pared, it will turn up in ſods two feet long, and ſave a great deal of labour of cutting by hand; the knives may be taken off, or put on occaſionally, and the roller will ſerve for other uſes, of rolling corn, &c.

About the middle of April, begin to pare, and do not miſs an opportunity of burning the ſods when once dry; which will be in three weeks after cutting, if the ſeaſon be not wet; but in a wet ſeaſon, they muſt be ſet upon an edge, and and they will dry the readier.

Being thus dry, and ready for burning, make heaps of about a cart-load in each, with the graſs-ſide downward; lay them as light and hollow as poſſible, that they may burn the readier.

Put ſome ſort of kindling under, to ſet it on fire, ſuch as ſtraw or ſticks, &c. but little will do, if there be any rough ſtuff, ſuch as heath, ruſhes, &c. on the ſods.

The way to burn it to the greateſt advantage, is not to let the blaze break out, but keep ſmothering within; for the more it blazes, the more of the nitre aſcends into the air.

Being thus burned, ſpread the aſhes, and plough them under, with a very thin furrow, at the moſt not above two inches thick; then harrow it, and when harrowed pretty fine, ſow the ſeed. After ſowing, buſh-harrow it.

A peck of ſeed is the due for an Engliſh acre, which is about one third leſs than an Iriſh one.

Take care to water-furrow and grip it well.

In the ſpring, weed it; and where it is too thick, pull up ſome plants, and tranſplant them in thin places, if any there be; if not, throw them away.

Some will hoe the rape, but I take this to be a ſuperfluous piece of labour.

The moſt famous place in England for raiſing this crop, is in the fenny countries, and they never hoe any; but I have ſeen farmers in other countries, take great pains in hoeing it; but this may be partly owing to their being ſtrangers to the right management, and to their taking overabundant pains, through a fear of not doing enough.

The chief thing is to ſow it even, and till well; there is then no fear of a crop; for the plants coming up thick, and having a broad leaf, ſmother the weeds, cover the ground, and keep it light and mellow; ſo that, in this caſe, I ſee but little need of hoeing.

I had a field one year, and in order to be ſatisfied which was the beſt way, I ſowed a piece in drills, and hoed it with the plough; and another piece I hoed by hand.

I did not threſh it ſeparate, but, in all appearance to the eye, there was no great difference, or, at leaſt, not any wiſe equivalent to the labour it coſt me; but in fact it was all as good a crop as could well grow.

Where there is not burn-beating, a good crop may be got by ſummer-fallow, managed directly in every degree, as for wheat, with the ſame manures, &c.

One advantage in ſowing rape is this, that the ſeed coſts a trifle, perhaps not above eighteen pence an acre; and if it hit, it is a valuable crop; and ſhould it miſs, the loſs of ſeed is inſignificant; and the land can be ſown with barley at ſpring, as there is time enough to diſcover what kind of a crop the rape will be before barley-ſeed time.

Obſerve that it is ready to reap, when the upper branches turn brown; be ſure you let it not be too ripe; of the two evils, the leaſt is, to reap it too ſoon, rather than let it ſtand too long; for if the pods be in the leaſt dry or raſh, they will open in reaping and ſhed the ſeed.

Birds of all ſorts are very fond of it, therefore it muſt be watched for a month before its reaping, to the end of threſhing; it is not altogether the value of what they eat, but in opening a pod, perhaps they will not get above one grain, and all the reſt will drop out.

It is reaped in the ſame manner as wheat, but the handfuls are laid ſingly and light upon the ſtubble behind the reapers; thus it muſt lie without ſtirring till it is ready to threſh, which will be in about three weeks after reaping; for it muſt be very raſh or dry, or there will be a loſs in its not threſhing clean.

Being thus ready for threſhing, prepare a floor in the middle of the field, or moſt convenient for the carriage, by levelling the ground, on which muſt be ſpread a large reap-cloth, in the nature of a winnow-ſheet, on which the rape muſt be threſhed.

Spread the rows round and threſh round.

One man ſpreads before the threſhers, another turns it after them, a third ſhakes off the ſtraw, and a fourth carries it away.

Theſe four men are to ſupply ſix threſhers, and four carriers in; with four to fill the ſheets, and one to rake off the pulſe, and riddle them.

Theſe ſet of people, being in all

nineteen, will threſh ſix or ſeven acres in a day.

It is better to proportion the labourers according to the quantity of rape you have, that it may be diſpatched in a day or two, as rainy weather may prove obſtructive; but if the rain ſhould happen to catch you, throw up the corners of the cloth, and cover it with pulſe, ſuch as ſtays in the riddle, which will turn rain extremely well.

There is no need of taking the ſeed off the cloth, but keep threſhing upon it, till all is done.

Some will ſell the ſeed to the oil-mills as ſoon a winnowed from the cloth; others that do not want money, will heap it up on the floor, mixed with chaff and covered up with the pulſe, ſo that it will be round and ſharp at the top like a haycock; and thus they will let it lie, perhaps two months, till it gets a ſweat in the chaff, which is very neceſſary; for being of a clammy oily ſubſtance, it would turn mouldy when clean in the granary, if it did not get a ſweat in the chaff, as above; but this precaution will prevent the ſaid evil.

It is immaterial to ſay any thing about winnowing, as it is eaſily done by any one that can winnow flax-ſeed or corn, as it is only ſuiting it with ſieves to the ſize of the ſeed.

The ſtraw was thought of no value formerly in England, but rather a nuiſance; but of late years, the aſhes it makes are found to be valuable for making ſoap; and the ſoap-boilers will buy the ſtraw, perhaps two or three months before it is reaped, and will give from three to ſix ſhillings per acre, according to the quantity that may appear to be thereon.

About the latter end of November, if the rape be ſtrong, ſo as to bear eating, (which you may judge of by the ſtrength of the plant, or groſsneſs of the ſtalk) turn ſheep in, and eat it till Candlemas, provided you do not overſtock it; but take care that they do not eat the ſtalks too near; they ought to go no further than juſt to eat the leaves off, without entering on the body of the ſtalks, for fear of wounding them too deep.

Cole-ſeed may be eaten a great deal ſafer than rape, as it produces a groſſer ſtalk; and when all the leaves are eaten off, about Candlemas it makes freſh ſhoots, and produces larger heads than if it had not been eaten; and, if the land be good and deep, it will produce a more profitable crop than of any other grain whatever.

I have diſcourſed with ſeveral farmers in England, that know no other difference between cole and rape-ſeed than the name.

It is true, that the ſeed is nearly alike, and no difference is made in the price to the oil-mills, as they produce one ſort of oil; but there is as material difference in the plant, and it is the advantage of a farmer to be well acquainted with it too.

The cole-ſeed is a ſpecies of cabbage, originally from Holland.

It produces a very large luxuriant plant, in good ground; it will produce a ſtalk like that of cabbage, and the ſeed in proportion to the ſize of the ſtalk.

A very full crop will turn out a laſt on an acre.

When the ſheep have eat the ſtalks bare, it is an eaſy matter to take them up, where too thick on the ground, and tranſplant them.

I once took as many ſuperfluous ſtalks out of two acres, as tranſplanted ſix; which bore as good a crop as the reſt, only a little later.

I am certain, a very great advantage might be made in this method, in the manner following, viz.

It is to be obſerved, that land for rape or cole-ſeed is fallowed all winter, and till the time of ſowing, which is the latter end of June, or in July; by which means the rape takes up the land this year, and till it is reaped, which is about the latter end of June the next year; therefore it is too late for ſowing any ſort of crop but turnips, when the rape comes off.

Now ſuppoſe you had half an acre of good land, or made it ſo by dunging it better than common, and tilling it a little extraordinary.

At the proper ſeaſon of the year, which is at Midſummer, ſow on this half-acre, one peck of either rape or cole-ſeed; but if I was to chuſe it ſhould be cole-ſeed.

Now, we ſuppoſe this to produce a very plentiful crop of plants, perhaps very few grains would miſs: thus let them grow till Michaelmas; and ſuppoſe you have ten acres of either wheat, bear, barley, or oats, as ſoon as the corn is reaped, plough the ſtubble; let it lie a month or ſix-weeks to rot, and then plough it again; this will be near as good as ſummer-fallow.

Begin at one ſide of the field, and plough a furrow; in this ſet a row of theſe plants a foot aſunder, leaning againſt the ſide of the furrow; then plough another furrow againſt it, make the furrow about a foot broad, ſo continue till all the field be ſet; but it is the beſt method to ſet them with the tranſplanting machine, as directed for wheat.

If the land be good, there will be no need of dung, &c. but if it be poor, have rotten dung in the field ready laid in heaps; take baskets, and lay a little at the root of every plant, about the ſize of a large potatoe will be ſufficient; by this means a little dung will go a great way, and not any of it will be laid in vain, as every plant will have the good of it.

This is a mighty ready way of tranſplanting; for, except the ploughing, it will not coſt above two ſhillings an acre.

The plants will be the better for leaning on one ſide.

About March if the mold be drawn up to the ſtems, they will be the better, though they may do very well without.

I do not doubt but there are as many grains in a peck of rape-ſeed as will ſet, at a foot diſtance from each grain, a hundred acres; therefore, without doubt, there will be as many plants to pick and chuſe, as would plant ten acres at the ſame allowance.

When the rape is reaped ſow turnips.

This is getting three profitable crops, and part of a ſummer's fallow, in two years; and the two laſt crops are of an improving quality.

It is true I never ſaw this method put in practice by any other perſon. However, I made trial enough in this way, to prove it valuable.

This experience, joined to the reaſonableneſs of the thing, makes it clear to me, that a farmer, by this management, might make great profits of his land.

If it ſhould be a buſy time about Michaelmas, the tranſplanting might be deferred till the beginning of February, and keep the land fallowing all winter; and indeed I doubt not but this is full as good a ſeaſon as Michaelmas, and the land may be kept fallowing, as I obſerved.

The ſpring-planting will drive the crop a little later; but I am convinced, that there is no doubt of the plants growing, from either ſeaſons: it is my opinion, not above one in an hundred would miſs.

I ſhould be glad to ſee this profitable piece of husbandry put in practice, in a large degree, as reaſon ſpeaks ſo clearly in its favour.

It would alſo make good winter-feeding, if he did not chuſe to let it ſtand to feed.

What a fine affair would it be for a farmer, to make ten or fifteen pounds an acre of his ſtubbles, the land the better for it, and the expence not above three or four ſhillings per acre?

If it ſhould miſs, the loſs is ſcarce worth notice, and the land will be the better for the fallow at any rate.

The middling produce of an Engliſh acre of rape is half a laſt; it ſometimes happens that an acre will produce a laſt; but it muſt be very good.

Cole-ſeed will very often produce a laſt, it being a ſtronger plant, ſo conſequently throws out larger ſeeding branches, where the land is deep and proper for it.

C H A P. XXXIII.

General directions for ploughing, ſowing, harrowing, and mowing, or harveſting barley.

IN October begin to plough your land for winter-fallow, which is intended for barley, except turnip-land, and this muſt be ploughed as ſoon as the turnips are eaten off.

Obſerve to gather or raiſe your ridges high in the middle of your winter-fallow, by which it will keep itſelf dry, ſo that it may be ploughed any time in winter, and the more it is ploughed, the better and richer it is made: take care that your land be got into ſowing order by the firſt of March, as the beſt ſeaſon for ſowing barley, is from that to the middle of April, though ſome will ſow till the middle of May; but a good deal may be owing to the ſeaſon, for it is better to wait a month, than to ſow in a dirty, cold, bad ſeaſon, as barley is a grain, above all others, that will not bear inclemency or hardſhip.

If you intend to lay your land down with any ſort of ſmall graſs-ſeeds, ſuch as clover, lucerne, &c. as ſoon as the barley is ſown and harrowed, as above, then ſow your graſs-ſeeds, and harrow it once in a place, with the harrow turned the wrong end foremoſt, that the pins do not ſink too deep, which would bury a great deal of theſe ſmall ſeeds; but larger ſorts of graſs-ſeed, ſuch as ſaintfoin, burnet, and the like, may be ſown, when the land is about half harrowed for barley, and then harrowed along with it, by which they will be the better covered; and, being a husky ſeed, they require it.

When the barley has been ſown about a month roll it.

Sow your barley immediately after the laſt ploughing, and harrow it extremely well.

Six ſtone of ſeed is ſufficient for an Engliſh acre.

One great article, on which the farmer's ſucceſs depends, is in keeping his crop clean; he muſt therefore take care it be well weeded, and throw the weeds into the furrows; being thus cleared from weeds, the buſineſs is over, till ready for harveſting.

As moſt perſons know when it is ripe, I ſhall only ſay, that the chief token is to obſerve the joints of the ſtraw; when theſe turn from a green to a dry ſtraw colour, it is ready for cutting; but no corn is ripe, as long as the joints are full of ſap, for thoſe are the juices which ſupply or feed the grain with its laſt nouriſhment, as it keeps feeding or filling, until the joints are ſucked dry, and then the green caſt departs along with the ſap, and nature has done its work; therefore fall to and mow it as directed in the next chapter.

CHAP. XXXIV.

On mowing and harveſting ſpring-corn.

WHAT may be properly called ſpring-corn, is that which is ſown in ſpring; ſuch as barley, oats, beans, peaſe, buck-wheat, and the like.

Theſe are all what the Engliſh farmers call mowing crops, which is done by a cradle on the ſyth; or, for want of this, a hoop made of a ſtrong brier, ſallow, or the like; the root-end of which is faſtened in a hole, made by a ſpike-gimlet, in the ſhaft, about eighteen inches from the heel of the ſyth, and the top-end of the ſtick muſt be brought with a bend over the heel of the ſyth.

The hoop muſt be croſſed ſeveral times with a cord like net-work, in order to keep the corn from falling through.

Upon trial, experience will teach him farther.

The mower being thus equipped, let him begin to mow, leaving the ſtanding corn on his left hand, that is to ſay, he muſt leave the ſwarth leaning againſt the ſtanding corn; and if he is a dexterous workman, he may leave it ſo even and ſtraight, that a croſs ſtraw will ſcarce be ſeen.

After each mower comes a gatherer, with a reaping-hook or a ſmall rake, to make it into ſheaves.

The complement for every two mowers and two gatherers is one binder; ſometimes when the corn is rank, or a heavy crop, the two gatherers will have a bandmaker between; and theſe five or ſix perſons day's work to mow, gather, and bind, is four Engliſh acres of fair ſtanding corn, either barley, beans, blendings, or oats.

Being thus bound, it muſt be ſet up in ſtooks; the ſheaves propping againſt each other, preſs the tops well together, in order to make them thin and ſharp, which will ſhoot off the rain the better.

The farmers in England ſeldom put any covering-ſheaves on their barley-ſtooks, but leave the corn-ends expoſed to all weather, believing the corn to harden the quicker, and more kindly; however as Ireland is a wetter climate, I would adviſe the farmer to cover them at night, and uncover them in the morning.

After ſtooking, the barley-ſtubble muſt be raked with a ſwarth-rake, ſo called from the length of its head, which is ſix feet, to take a ſwarth-breadth at a time.

It has one row of iron pins, each pin eight inches long out of the wood, and three inches aſunder.

It has a handle in proportion to the reſt of the rake, in which is fixed a belt to go about the man's ſhoulders, to draw it in the nature of a harrow.

When he finds his rake full, he muſt lift it up, whereupon the corn drops out; he then goes on again, always leaving the corn in the ſame place or range, in the nature of a wind-row.

When the field is raked, cock the rakings like hay; and this is very uſeful to lay on tops of the field-ſtacks, as it will lie better than ſheaves, and ſhoot the water off; but, in England, they never ſtack their corn in the field, but let it ſtand in the ſtook till it is ready to take home to the barn or hag-yard.

However, as Ireland is a moiſter climate, I believe it a very good way, particularly if the corn is to be houſed.

And perhaps if England was to do the like it might be better, as it would put the corn out of danger of bad weather.

N. B. Spring-corn, ſuch as barley, oats, beans, and peaſe, are all harveſted the ſame way by mowing; therefore I ſhall refer my reader for directions on thoſe heads to the foregoing inſtructions.

The expence and profit ariſing from an acre of barley, ſown after turnips.

	l.	s.	d.
To eight quarters at 20s. per. Total produce - -	8	0	0
To two ploughings, if only with one man and two horſes	0	5	0
To harrowing, ſowing, rolling, and water furrowing -	0	3	0
To chance of weeding -	0	2	0
To ſeed - - -	0	5	0
To mowing - -	0	1	0
To gathering and binding	0	0	6
To raking with a ſwarth-rake	0	0	4
To ſtooking, carriage home, and extraordinary attendance	0	4	6
To carriage to the market, and expences extraordinary	0	6	0
To land-rent upon a par	0	15	0
Total expence	2	2	4
Clear profit	5	17	8

Note. The ſtraw pays for threſhing.

The expence and profit ariſing from an acre of barley, by proper fallow.

	l.	s.	d.
To eight quarters of barley, at 20s. per barrel. Total produce	8	0	0
To ten ploughings, by one man and two horſes, at 2s. 6d. per	1	5	0
To ſowing, harrowing, and rolling	0	3	0
To ſeed	0	5	0
To chance of weeding	0	2	0
To mowing	0	1	0
To gathering and binding	0	0	6
To ſwarth-raking	0	0	4
To ſtooking, carriage home, and extraordinary attendance	0	4	6
To carriage to the market, and other expences	0	6	0
To two years land-rent	1	10	0
Total expence	3	17	4
Clear profit	4	2	8

The expence and profit ariſing from an acre of barley, when ſown after the common husbandry.

	l.	s.	d.
To 6 quarters of barley, at 20s. per - - -	6	0	0
To two ploughings with four horſes and two men -	0	10	0
To harrowing and ſowing	0	3	0
To ſeed - - -	0	7	6
To weeding - -	0	3	0
To reaping and gathering	0	6	0
To ſtooking, carriage home, and extraordinary attendance	0	3	0
To carriage to the market, and extraordinary expences	0	5	0
To rent - -	0	15	0
To lime or other manure	2	0	0
Total expence	4	12	6
Clear profit	1	7	6

CHAP. XXXV.

Remarks on the foregoing Tables.

I Have been the more particular in laying down the three foregoing tables on barley, that the farmer may at one view ſee that which affords the moſt profit, that he may be induced to copy after it for his own and the public good. And it appears very plain from the ſaid tables, that there is no profit equal to that which comes after turnips; and particularly when he conſiders how eaſy a crop of turnips is got, and alſo the profit ariſing therefrom, as appears by the ſaid table.

The next to turnips in profit is that of fallow, as from it we are ſure of a full clean crop; and that without any other manure than what the air and weeds produce; which indeed is the richeſt of all others, as may appear by what I have ſaid on thoſe heads.

CHAP. XXXVI.

On five different ſorts of barley.

FIRST, ſprat or battle-door barley.

Second, long-eared barley.

Third, round-eared ſummer-barley.

Fourth, round-eared winter, or by ſome in England, called big; but its true name in Ireland, is bere.

Fifth, ſix rowed barley.

Were I to add a long chain of names (as is uſual with ſome authors) it would be ſwelling my work into an uſeleſs chit-chat, as every name that is added to thoſe, is only explaining the ſame thing over again; for it is the different language or rather gibberiſh of different kingdoms or counties, which gives riſe to ſo many names for one ſort of grain.

This may well confuſe the ideas of a farmer who does not know how to account for all the names that are given to the ſame ſort of grain: may not this lead him to ſeek, under a diſguiſed name, for the very ſeed himſelf has growing?

It is true, different land and tillage will, in ſome degree, change the form of ſeed, as to a thick or thin skin, a ſmall or a large ſize, or the like; but the ſpecie is yet the ſame.

The ſprat or battle-door barley, has only two rows of grain, by which reaſon the ear is flat; the corn is ſhort, plump, and thin skinned, not inclined to have a long groſs ſtraw, (but indeed this varies according to the richneſs of the ground it is ſown on) it is ſaid it will grow beſt on light ſandy land, but I know it will grow well on many other ſorts of land.

I have had great crops on tough, ſtrong, cold clay, or gravel land; but ſuch muſt be well pulverized, ſweetened, enriched, mollified, and warmed by tillage.

Manures on ſuch land will not do for barley, without the cold ſour nature of the ground be changed by tillage.

The manure which aſcends and deſcends from the clouds, is of a warmer and earlier nature than any other, therefore will produce the earlieſt and thinneſt skinned crops.

The long-eared barley gains its name by having a long ear, by which it may yield more corn under the flail; but the grain is ſmall and long, and has a thick skin; its choice as to the land and tillage is nearly to ſprat-barley, but may do with ſomething colder or ſtronger ſoil.

Round-eared ſummer-barley, is an excellent good yielder; it is a middle ſpecies between bere, or winter-barley, and ſprat-barley, therefore muſt be ſown early in ſpring.

The lands of Ireland, Scotland, and the north of England, are very ſuitable for it, provided they be well tilled. It has alſo a plumper, fuller, or bolder grain than bere, though not in this caſe equal to ſprat barley.

It is not ſo delicate or tender as ſprat-barley, neither is it ſo hardy as bere; indeed it is my choice next to ſprat-barley, for almoſt any ſort of land which is proper for barley-crops.

Bere, winter-barley, or big, is beſt known in Ireland, or the north of Scotland, and indeed, by their tillage, it is moſt fit for them.

I have held ſeveral arguments with Iriſh farmers about this grain, and I generally found the ſtrength of their arguments to hang upon prejudiced old cuſtoms, believing as their forefathers ſowed it, though in darker days of improvement, that they would not be right if they did not follow their ſteps; and in ſhort, it is as hard to ſhake the reſolution from the purſuit of this their favourite grain, as from being drunk by the whiſky or ſpirit it makes.

This bere is generally ſown at the ſame time with wheat; and though ſlovens ſometimes get good crops, perhaps chiefly from the ſtrength of manure, (as they moſtly ſow it after potatoe-crops, or on their rankeſt land, which would in fact bring onions) yet I obſerve thoſe who manage better, have in general better crops; and bring it nearer to the reſemblance of barley for plumpneſs; but, at beſt, it is far ſhort of barley in value, inſomuch, that it would hardly be ſold in the Engliſh markets at any price, except for hen-corn.

It is a poor, long, ſmall grain, with a thick ſkin; but notwithſtanding this, it is not without its good qualities, where it is uſed in its proper place.

It is to be obſerved, that the poor of Ireland live about eight months out of twelve on potatoes.

A potatoe-garden for a poor family is generally about half an Iriſh acre; they keep no team, therefore cannot till the potatoe-ſtubble fit for a crop of barley; for it is to be obſerved, that there is no more of the ground ſtirred, than what they throw out of the trenches to cover the potatoes with.

The bed on which the potatoes grow, lies unmoleſted till the third crop; therefore when they dig the potatoes, they ſow the bere, and ſhovel up the trenches to cover it, which is all the husbandry it gets or wants.

But ſuch husbandry would not do for barley, therefore in this caſe it may have the preference.

CHAP. XXXVII.

On different ſorts of land for barley.

BY the dint of ploughing, good huſbandry, and rotation of crops, almoſt any ſort of land may be brought to grow barley; however, ſome is better or more ſuitable for this crop than others; therefore I ſhall begin with the beſt firſt, and go regularly on to the worſt, which ſhall be placed laſt, viz.

Firſt, loamy ſand.
Second, loamy gravel.
Third, chalky land.
Fourth, ſandy land.

The above four ſorts, by nature, will produce a long ear, and ſhort ſtraw, a plump, ſtout grain and thin skin, which is certainly of the beſt quality.

Fifth, loamy gravelly land, that lies over limeſtone.
Sixth, warpy land.
Seventh, black haſſe earth.

Eighth, ſtrong clay land.

Ninth, black mountain land.

Tenth, black, deep moory bottom land.

The laſt ſix ſorts of land, generally produce a long ſtraw, and a ſmall ear, a long ſmall grain, and thick skin; but may be helped greatly by tillage, ſowing thin, and particularly if it follow turnips, as they in all caſes are an excellent preparative for this crop, and deſerve to be made a more general choice of.

CHAP. XXXVIII.

On the mangement of rye, bot for winter feeding, and a ſeed-crop.

THE management of rye is very ſimple and eaſy, which few words will explain.

A farmer having ſtubble-land, particularly if of a warm ſandy nature and would wiſh to have it under profit the winter half-year; let him plough it as ſoon as the corn is reaped; begin in the middle of the ridge, and gather or take it up, that it may lie very high, and dry; this done, ſow two buſhels of rye on an Engliſh acre; harrow it in, and by being thus early ſown, the Michaelmas ſpring will puſh it up ſo forward, that it will be mid-leg deep by December; but though it may be a full eatable crop by this time, yet the beſt way is not to turn cattle upon it till ſpring; then other herbage being ſcarce, will make this more valuable.

You muſt eat it off time enough, to ſow ſuch a ſpring-crop as you intend; but barley is the moſt ſuitable, as it will bear to be lateſt ſown, therefore will give the rye more time to be eat off.

If you would have your rye to ſtand

for ſeed, there are two ſeaſons for ſowing it, namely, at Michaelmas and February.

The large winter-rye muſt be ſown at Michaelmas, and the ſmall ſpring-rye in February. Six pecks of ſeed are enough for an acre. You muſt cover it with the harrow.

This ſpring-rye is ſometimes made uſe of amongſt the Engliſh farmers (if a crop of wheat ſhould miſs) to ſow in its place.

In ſpring, roll your rye, (which you intend to ſtand for ſeed) if too forward, eat it with ſheep, or calves in the beginning of May.

As the farmer's ſucceſs partly depends on keeping his crop clear of weeds, this as in others muſt engage his attention.

As to reaping or harveſting rye, it is done in the ſame way as wheat.

Graſs-ſeeds may be ſown among rye, before it is rolled in ſpring, and will anſwer as well, as if ſown amongſt wheat: a crop of rye is about the ſame value as a crop of oats, but it is a greater impoveriſher of land.

The land moſt proper for rye, is that of a dry, open, looſe, weak, ſandy, or moory nature; and though ſtrong land, of a good ſort will grow rye, yet other crops may be adapted for ſuch land, which are more profitable.

CHAP. XXXIX.

Remarks and illuſtrations on Rye.

RYE formerly was greatly eſteemed in the light ſandy counties of England, as the farmers thought ſuch land would bring nothing elſe; but ſince the new husbandry of turnips and clover has made its way into the world, it is found that they change the nature of the land, and conſolidate it in ſuch a manner as to prepare it for a crop of wheat, which is much more valuable than rye; however, rye is ſtill uſeful in its place; and particularly for that of ſpring-feeding, as it is a great creator of milk, which makes it particularly uſeful to feed early lambs on; and what ſtill adds to its value in this caſe is, that the land moſt proper for rye is that of a dry, light, ſandy nature, which, if the weather be ever ſo wet, the rain no ſooner falls, but it ſinks through, and leaves the ſurface dry, therefore the lambs can feed, and lie dry and warm; whereas if the ground was clay, ſuch as would hold water on the ſurface, the conſequence would be bad in deſtroying the lambs, which would retard their feeding and growth. Alſo in ſuch land they would tread and dirty the crop, ſo that their feet would deſtroy as much as their mouths.

Again, rye is the beſt of all other corn to ſow on reclaimed bottom, bog, or mountain, (I ſay the beſt of corn) but I apprehend no corn is equal to turnips, rape, or cole-ſeed, for ſuch reclaimed lands; but when it is propagated on ſuch land, it muſt be ſown very thin, as it will ſtool much. The conſequence of ſowing thick on ſuch land would be dangerous, as it would throw up much ſtraw, but little corn.

The great uſe for rye, is to mix it with wheat for bread: about two thirds wheat, and one of rye, make well-taſted bread, but black.

In this mixed ſtate, it is called meſlin. Some ſow wheat and rye mixed, which is called meſlin: but I do not like this method, neither do I ſee any meaning in it; for, in the firſt place, they do not ripen kindly together; beſides, if the land will bring one ear of wheat, by the ſame rule it may bring two or more; and certainly wheat is a much more deſirable crop, if it can be got on the ſame land.

Notwithſtanding, rye is ſtill uſeful (as before obſerved) in ſandy countries, and for reclaiming bog with, where the farmer is obſtinately bent againſt turnips and clover.

Rye makes good malt for the diſtillers, it being of a particular ſweet taſte or nature, therefore produces a great deal of ſpirit.

Again, a farmer may make uſe of rye with ſucceſs, to bring his ſows in ſeaſon for the boar, it having a ſurpriſing effect that way; ſo that they tell you, one peck of rye will make a ſow take the boar, be ſhe ever ſo poor, or ſoon after pigging; others ſay that it will have the ſame effect on cows or ewes.

As to the truth of this, I cannot ſay, but I have tried it on the ſow more than once.

Note, there are only two ſorts of rye worth the farmer's notice, namely, ſmall and big, and by others called winter and ſummer rye.

The winter rye is a large full grain; but the ſummer-rye is a ſmall grain, and is generally ſown in ſpring, and will be in as early at harveſt, as that ſown at Michaelmas.

The winter-rye, ſown to ſtand the winter, is a hardy kind, and will anſwer either to ſtand for ſeed, or to be ſown, and eaten, for winter-feeding.

Rye-ſtraw is very good thatch or litter, but bad fodder for cattle.

CHAP. XL.

Directions for ploughing, ſowing, and harveſting Oats.

OATS are a grain that will grow almoſt on any ſort of land, or with any kind of husbandry; but though ſometimes tolerable crops are got by ſlovens, yet thoſe who manage better may be ſure of a larger return; and this is, or may be got, chiefly by tillage, and letting proper crops come in their right courſe of ſucceſſion, by which means the one crop is an uſeful prepartive to another.

If ſtubble of any ſort be intended for oats, it is the better to be ploughed as ſoon as the graſs is eaten off, which is generally about November; and then it being turned under, and the roots of the graſs or weeds expoſed to the froſt, and the inclemency of the weather, they are killed, and, inſtead of a nuiſance, are rendered a great improvement.

Many farmers make a practice of ſowing oats upon lay; that is, in or about February, they plough up the lay, ſow the oats, and then harrow them in very well, ſo as to be all covered.

This may anſwer where the land is

good, and of a tender ſod, not given to coarſe graſs, or ruſhes; but however, in general, I do not approve of it, as I look upon fallowing out of the ſod to be the moſt capital management in nature, for the reaſons I have mentioned in the proper place.

The land muſt be ploughed, and the ſeed ſown in Febuary, or from thence, till the latter end of March.

I look upon three buſhels of oats to be a ſufficient quantity for any kind of land; for though it is a grain that does not ſtool, or branch ſo much as barley or wheat, yet it corns in proportion to the nouriſhment it finds in the ground.

When the oats are about three weeks or a month in the ground, ſow any graſs-ſeeds you intend, and roll them in, as it will cover the ſeed, level the ground, and help the oats at the ſame time.

The oats muſt be weeded about the

middle of June; then any farther buſineſs is over until harveſt, for which, obſerve the directions under the head of mowing corn; they muſt be mown and harveſted the ſame way.

Without doubt, by mowing, there is more fodder, and conſequently more manure, beſides all the hands it ſaves, which is a valuable conſideration, at this buſy ſeaſon of the year; moreover, it ſhould be the farmer's chief ſtudy to work his lands with as little expence and labour as poſſible; and yet not to be ſo penurious as to ſtint his land of its proper due.

There is a medium to be uſed in all things, and alſo much to be ſaid in favour of genius and contrivance, particularly, in farming-matters, as it is of all occupations of the moſt general benefit to mankind.

CHAP. XLI.

The explanation of ſix different ſorts of Oats.

OATS, like moſt other grains, have got a multiplicity of names, to explain one and the ſame thing; but this (as obſerved in barley) is owing to a different dialect or confuſion of tongues, peculiar to each country or kingdom. In fact, I imagine there is none more proper for theſe climates than theſe ſix ſorts, viz.

First, the ſingle Engliſh white oat.
Second, the Poland oat.
Third, the Scotch black oat.
Fourth, the naked oat.
Fifth, the red oat.
Sixth, the brown oat, ſown much in the ſouth-weſt part of England.

If there be any others that vary from theſe, it is not becauſe they are different ſorts or ſpecies, but becauſe they have been altered, in either colour or ſize, by the nature of the ground or climate ſown in.

However, there is a particular choice to be made in all ſorts of oats, which is very material for the farmer to know, in order to heighten his ſucceſs in this crop.

It is to be obſerved, that in moſt oats, there are ſome which grow in couples, (that is) a large and a ſmall one together, but in ſome a great deal more than others.

The farmers who know the bad conſequence of theſe double oats, are very careful in chuſing their ſeed, to be all (if poſſible) of the ſingle oat: and indeed they have juſt grounds for this nicety; as a barrel of ſingle oats will weigh more, by about two ſtone, than a barrel of the double ſort; and every one will allow that it is the weight that diſtinguiſhes the goodneſs or badneſs of any corn.

The oat grows double from three cauſes.

Firſt, by being ſown too often on one ſort of land without changing.

Secondly, by being ſown too thick on the ground.

Thirdly, by the ground being too rank.

When oats have once got into the double ſtrain, they ought to be ſown no more, as it is hard to bring them back to the ſingle oat again; though this may be done by ſowing very thin on good ſtrong land, and tilling well to prevent weeds from ſmothering the oats, and drawing them up weak.

I look upon the Engliſh ſingle white oat to be the beſt of all others, for the climate and lands of England or Ireland, as it is a good yielder, both in corn and meal, and ripens even; which is a very material point in this crop, it being ſo ſubject to ſhed, or ſhake its ſeed.

The next in value, particularly for the wet or cold lands of Ireland, or the north of England, is the black Scotch oat; this yields well, both in corn and meal, and is early ripe, therefore may be ſown later, (if a cold wet ſpring) by three weeks, than any other ſort. the meal alſo has a peculiar rich, ſweet taſte.

The Poland oat is a fine, ſhort, plump grain; the ſtraw ſhort and fine, but it will not turn out near ſo much corn on an acre as the two former.

Again, it is very ſubject to ſhed with the leaſt wind, the top and beſt of the corn, when that on the bottom-branches is green, particularly if the land be cold and wet; but indeed on warm, gravelly, or ſandy land, it ripens more even; therefore a farmer has a better chance to catch his crop before it ſheds; but this oat muſt be cut while the chaff or husk on the lower branches is greeniſh; for if they be let ſtand, till they turn as white as the top-branches, half of the crop will be loſt in harveſting.

The naked oat is a ſmall grain; it is called naked, becauſe it has no bran upon it like other grain, but grows in the ſame ſtate as the kernel of the common oat when ſhelled; therefore is a ready grain for bread, as when it is threſhed, there is no more to do to bring it to meal, than grind it, and then it is all meal, and no bran; it is a ſweet meal, and conſequently makes good bread.

When it is ſown on land proper for it, it will produce as good or profitable a crop as other oats; for though the bulk will be wanting, the meal is there; and if it be a good crop, the grain may be as large as the kernel of common oats when ſhelled.

The ſtraw is ſhort and fine, therefore good fodder for cattle. This oat does not ſtool or branch much, therefore muſt be ſown pretty thick on the ground; two buſhels will do this, as the grain is ſmall.

They muſt not be ſown under furrow, but harrowed in, as their ſmall weak nature would not be able to work through a thick furrow.

The land for this crop muſt be finely tilled; and as all land after ploughing has an uneven ſurface, it is neceſſary, before this grain is ſown, to harrow it once in a place to level it, to prevent the ſeed falling too deep, and alſo make it ſpread even, and go farther; after the grain is ſown, harrow it fine.

Delay ſowing graſs-ſeeds till the firſt of May, that the oats may get ahead, or they will be ſmothered, being a ſmall plant. The ſeaſon for ſowing the oats is about the firſt of April.

The red oat takes its name from the colour it bears, though, in fact, it is not abſolutely red; therefore, I think it is wrong applied; the colour is of a ſandy caſt, much like oats that have been heated in the ſtack.

It is a heavy thin-skinned oat, therefore yields well in meal, and will nearly produce as much on an acre as the Engliſh white oat; however, it requires a rich, warm, well tilled ſoil.

I have heard gentlemen ſay, they have had greater produce from this than any other crop: but, as that was not my caſe, I cannot ſpeak from experience in this particular.

The expence and profit ariſing from an acre of oats, Engliſh meaſure, at five yards and a half to the perch.

	l.	s.	d.
To ſeven quarters of oats at 18 s. per - - -	6	6	0

	l.	s.	d.
To ploughing twice, with one man and two horſes -	0	5	0
To harrowing, ſowing, rolling, and water-furrowing -	0	2	0
To chance of weeding -	0	2	0
To ſeed - - -	0	9	0
To mowing - -	0	1	0
To gathering and binding	0	1	0
To ſwarth-raking -	0	0	4
To ſtooking, carriage home and attendance - -	0	2	0
To carriage to the market, and expences - -	0	6	0
To land-rent - -	0	15	0
Total expence	2	3	4
Total profit	4	2	8

CHAP. XLII.

The management of Beans.

STubble-land is what is generally uſed for this crop, if you intend to raiſe it to the beſt advantage. Plough your land as ſoon as the crop of corn is off; and the firſt of February, if the weather permits, plough again; then ſow your beans; if you ſow blendings, mix two beans for one pea; when ſown, harrow them in, but do not harrow the land too fine; if the beans or peaſe be not all covered, thoſe that lie upon the ground will grow, and be the forwardeſt, and as good, if not the beſt plants.

This may ſeem odd to thoſe that do not underſtand it; but however, it is poſitively fact, which I have often experienced; and may appear to a nice inſpector thereof.

It is well known, that the ſeed of this grain riſes upon the top of the plant, and if they be covered too deep, it is hard for the ſeed to make its way thro' the earth; whereas, the ſeed that lies on the ſurface, has not that labour to go through, but the damp of the earth (if there be no rain) attracts the ſeed, and makes it ſtrike its root downwards, in a very little time.

As often as I have noticed this, I do not remember I ever ſaw a pea or bean loſt, by lying upon the earth, that did not grow; indeed the fowls of the air, is a conſideration that ought to be guarded againſt, as there is a greater danger to be feared from them, than from not growing.

Some farmers plough their beans under, but the above ſhews they would do better harrowed in.

I have known ſeveral crops of beans to rot in the ground, in a wet ſeaſon, when they have been buried too deep, ſo that they could not make their way out of their cold ſituation before they periſhed; but this can never be the caſe by lying on the ſurface.

I wonder the farmers do not open their eyes to theſe plain facts, ſince it is as clear as the ſun, that they throw a great deal of ſeed and labour away: how often have

I ſeen this done, by what they call dibbling?

When they practice this, they go with a ſtick, and make a hole beſides a bean, and let it drop in, and thus they ſerve all all beans that have miſſed covering with the harrow. Whereas, if they would ſend one boy to keep off the birds, four or five days, they would prevent all that expence and trouble, except a very dry time enſued.

When the ſeed is ſown and harrowed, water-furrow, grip, and drain your land, to keep it dry.

Beans muſt not be rolled like other grain, as that would break and ſpoil them, being of a frem tender nature.

I muſt remind the farmer not to forget to weed them ; and then all further trouble is over till harveſt.

Beans are ripe for reaping when the

pods are turned black about half-way up the ſtalk, but the top pods and upper part of the ſtalk will be green. They are harveſted the ſame way as ſpringcorn, except (inſtead of ſwarth-raking) what drops from the ſyth muſt be picked or gleaned up, by a parcel of women or children.

CHAP. XLIII.

Explanation of the Field-bean.

THERE is one ſort of bean particularly worth the farmer's notice, and that is the ſmall round, black field-bean, by ſome called the magazine-bean; it is nearly black, and has not a dint or flat place about it, except at the thick end, where the eye is; moſt beans have two flat ſides, but this is plump, full and round. It is a good bearer, and the ſtraw is ſmall, and excellent feeding for horſes.

The next to this in value is a grey bean, of a larger ſort than the former; this is called by ſome, battle-door field-bean, by others large field-bean. It is ſhaped not much unlike a battledoor, or in the Iriſh phraſe, a beetle; this requires richer land than the former magazine-bean, ſo conſequently is not ſo good fodder, becauſe the ſtraw is very groſs, neither is it ſo early ripe; but it is a good yielder, and except the former ſort, is the beſt bean a farmer can ſow in the field.

The Iriſh farmers are almoſt quite ſtrangers to the magazine-bean; and as to the large field or battle-door bean, they ſow it but in few places; they are too much attached to the culture of a garden-bean, commonly called the hot-ſpur bean. It is white, and the ſmalleſt ſort of garden-beans; it produces a ſtrong-taſted coarſe meal, and a groſs ſtalk or ſtraw, which a horſe will not eat, neither is it a great yielder. I was once perſuaded to ſow ſome, and to look at it on the ground, was a great crop; but the produce was in the ſtraw, and not in the corn, and the ſtraw was of no uſe; this bean muſt alſo have good land to grow on. In ſhort, I believe it unnatural and unprofitable to be cultivated in the field as a horſe-bean. As to the different ſorts of garden beans, I ſhall refer my reader to books of gardening, as this work is intended for the farmer's guide, and not the gardener's.

CHAP. XLIV.

The moſt ſuitable land for Beans.

I Have hinted in my remarks on beans, that almoſt any land, by proper management, particularly after turnips and clover, may be made to bring beans.

But as much as may be ſaid for genius, forecaſt, or management, yet ſome lands are a great deal more ſuitable for this crop than others, which I ſhall point out as follows, beginning at the beſt firſt.

First, deep, ſtrong loam-land.
Second, ſtrong blue clay land.
Third, ſtrong clay gravel land.
Fourth, warp land.
Fifth, black haſle earth.

The above five ſorts may be ſown with ſucceſs, with clear beans, if the farmer chuſe it; but if he would ſow peaſe among them, they muſt be ſown very ſparingly, as the land will run them into ſtraw, ſo that they will get the better of the beans, and weigh them down, and hinder them from corning well. But the three following ſorts of land, being of a lghter nature, muſt be mixed with peaſe; proportion two beans for one pea, or the ſucceſs will be doubtful.

Sixth, loamy ſand land.
Seventh, red fox ſand land.
Eighth, gravelly mountain, mixed with black moory earth.

The three laſt ſorts of land are proper for peaſe alone; but beans are proper, and even neceſſary to be ſown among them, by the way of rodding; and if the beans were not to bear a ſingle grain, they would add to the peaſe bearing, at leaſt, one third more, and keep the ſtraw from the ground ſweet and clean: whereas, when the pea lieth on the ground, the root-end is kept always wet, and will be black and almoſt rotten, while the top is green, or perhaps in bloſſom.

Note, I mention the laſt paragraph on peaſe, purpoſely to ſave the labour of explaining them in a chapter by themſelves, as there can be little more that is material ſaid on the land proper for them.

CHAP. XLV.

Remarks and illuſtrations on Beans and Peaſe.

THIS is a crop that deſerves the huſbandman's attention as much in its place as moſt others.

Experienced farmers taſte the ſweets in the profit ariſing therefrom, which makes them ſo attentive thereto; with them they are one of the principal crops, having a ſucceſſion every year, except in ſome very light ſandy countries; in ſuch they ſubſtitute peaſe in their place, or perhaps ſow blendings, that is, beans and peaſe mixed.

All over England the value of beans is well known to every traveller, being as frequently called for as oats to refreſh the wearied horſe with; the due proportion for a feed, is to mix half a peck of oats and a quarter of a peck of beans together; indeed ſome will feed with half and half, others with all beans; however, I believe half beans and half oats is the beſt feed.

They are alſo made great uſe of, to feed bullocks, or milch-cows; to the former, they are a great fattener, and to the latter, a creator of milk; when they are uſed for theſe purpoſes, they are ſplit, that is, half-ground, and mixed with bran or oats, but then the oats muſt be bruiſed in the mill alſo.

It is to be obſerved, that corn of any ſort, given to horned cattle, if not bruiſed in a mill, will paſs through them whole, and therefore be of little uſe, as they cannot chew like the horſe-kind, but ſwallow them whole; this makes it abſolutely neceſſary to have them ground.

The next great uſe of beans or peaſe, is for feeding hogs, as they give a firmer texture,and finer flavour to the fleſh, than any other feeding whatever.

Alſo, the ſtraw and pulſe of the common horſe or field bean or pea, is very good fodder for horſes.

In ſhort, they are ſo valuable a crop for farmers, and ſo uſeful to mankind in general, that it is very aſtoniſhing, the Iriſh and Scots ſhould be ſo blind to their own intereſt, as not to ſow them more than they do, particularly as the lands through the whole kingdoms are extremely fit for them.

Many an argument I have had with gentlemen and farmers, in moſt parts of theſe kingdoms, particularly in Ireland, in favour of this crop; and it is amazing to hear the weak objections made uſe of to fright themſelves (as I may expreſs it) from ſowing this valuable pulſe.

Some would not ſow them, becauſe they thought their horſes would not eat them: others were apprehenſive they would blind their horſes: a third believed they would give their horſes the gripes: a fourth imagined the ſtraw of no uſe: a fifth liked the crop, but was afraid to ſow it, as the poor people would ſteal it, &c. &c.

The former objections are anſwered as above, where I have explained their value, to which I call any experienced farmer to witneſs: and here I farther add, I do not know them to have one diſagreeable property whatever (when dry) in the uſe they are for.

As to the laſt objection, of the poor ſtealing them, this might be removed in a great meaſure, by making them more general: for the more there would be ſown in a neighbourhood, the leſs, a few taken thus would be miſſed; beſides, it is not above a month or ſix weeks (which is from being full to taking home) that they lie under the mercy of pilfering; and would it not be well worth a farmer's while, to watch them in the day-time? and in the dark night they could do little hurt.

Another advantage is, that their bloſſom affords a plentiful food in a country for bees to lay in their winter-ſtock from.

I have likewiſe heard Iriſh farmers ſay, that beans are a great impoveriſher of land; but here again I imagine they are miſtaken, for I believe them to do leſs hurt to ground than any other corn, except peaſe.

It is a proverb amongſt good farmers, that though the land be poor, if they can get a good crop of beans or blendings, they are ſure of a good crop of wheat on the ſame land the year following.

But let me further remark, that I do not think either beans or peaſe, ſown each by themſelves, will afford ſo much profit to the farmer as when ſown mixed.

I know by this aſſertion, that I ſhall draw the cenſure of ſome of the Engliſh farmers upon me; ſuch as are very careful to keep the beans clear from peaſe; however, no argument is ſo good as when ſupported by ſtrong reaſons.

Another thing is, I ſhall have about three fourths of all the farmers in England on my ſide, who at preſent practice ſowing blendings, though their land may be ſtrong clay, and no doubt they will find their advantage in ſo doing.

The due proportion for any land (except it be a very light blowing ſand) is two beans for one pea; by which means, they will be (without doubt) a ſtanding crop, as the beans will be (as it were) a rodding for the peaſe; in this caſe they are aſſiſtants to each other; for as the peaſe are kept ſtanding, and form (as it were) an arch over the top of the bean, the circulating air is admitted round them to aſſiſt in feeding the corning part thereof.

The beans when ſown alone, admit of graſs or weeds to grow among them; and theſe encroachers take on, or impoveriſh land worſe than the beans themſelves; but the peaſe being ſubſtituted in the place of the weeds by ſuch œconomy, the land is burthened with nothing but what will enrich both herſelf and her maſter.

It is paſt contradiction, that a crop of blendings (be the land of what ſort it will, except a blowing light ſand, or black bog, which laſt is not fit for either) will produce conſiderably more corn, than if each was ſown ſeparate.

In England, farmers have a very good opportunity to try experiments in their common town-fields; but as an explanation thereon may not be diſagreeable, read it in the next chapter.

A Table of expence and profit ariſing from an Iriſh acre of beans and peaſe being ſown together, called blendings; the proportion of mixing for ſowing, is two beans for one pea; and in this ſtate, they will produce more corn to the buſhel, by about one fourth, than if each was ſown ſeparate.

	l.	s.	d.
To 48 buſhels of blendings at 3s. per. Total produce	7	4	0
To two ploughings with one man and two horſes -	0	5	0
To ſowing and harrowing	0	2	0
To chance of weeding -	0	2	0
To ſeed - -	0	6	0
To mowing, gathering, and binding - - -	0	3	0
To gleaning - -	0	1	0
	0	19	0

	l.	s.	d.
Brought over	0	19	0
To ſtooking, carriage, and extraordinary attendance	0	3	0
The ſtraw pays for threſhing	0	0	0
To land-rent - -	0	15	0
To carriage and market-expences	0	5	0
Total expence	2	2	0
Clear profit	5	2	0

CHAP. XLVI.

A few choſen receipts which have been proved by the author to be valuable for the cure of horſes and cattle.

AS I am a farmer and no doctor, I do not intend to beſtow much paper on this ſubject: what I propoſe is, to give my reader a few valuable receipts that I myſelf have proved.

For many years I have been moſtly my

own horſe and cow doctor, and always found more ſucceſs from my own performances, than when I truſted my cattle to conceited, ignorant, blundering farriers, whooftener act by chance than judgment, and who have killed me cattle that I myſelf could have cured.

Not long ſince I had a valuable mare killed by a fellow applying wrong drugs; and her diſorder was of ſuch a ſlight nature, that if ſhe had been let alone, ſhe could not have died of it, but I happened then to be from home.

Books of farriery are doubtleſs very uſeful when they fall into the hands of men of ſenſe, who can dive into and lecture upon a diſorder; he that can do this, certainly can chuſe out a proper medicine when he has a book before him containing ſeveral hundred receipts, and multitudes of different kinds of drugs preſcribed.

Such books are generally intended for

the unſkilful; but I am of opinion that it requires more ſkill to practiſe from them, than to write them. That there is more ſtreſs laid upon the judgment of the reader than the writer is plain; for when the writer has deſcribed a diſorder, he will give you a catalogue perhaps of ten or a dozen receipts, made up of as many different drugs to each, and generally goes on, you may apply this, or this, or this; therefore he certainly leaves you to chuſe what he himſelf could not determine to be the beſt: and if he did know which was the beſt for ſuch a diſorder, he ought to have inſerted that and no more; if one will work the cure, why ſhould he perplex the ideas of an ignorant man with ſuch a multitude; for my part, I always found the fewer the better and ſafer.

The cauſe and cure of Greaſe in Horſes.

THIS is one of the moſt common diſorders that this fine animal is ſubject to, and it is very diſagreeable to his maſter, as well as painful to himſelf; though it is not often attended with immediate death, yet it is generally a prelude to other diſorders, which in the end prove fatal; and though a horſe get twice his allowance of corn, he will not be fat, as long as he has the greaſe; for, inſtead of curing, it heightens the malady.

There are few men that keep horſes, but what have a trial of this diſorder ſome time or other; and though there are as many cures preſcribed perhaps for this as the tooth-ach, yet I never ſaw one that correſponded with the real cauſe of the diſorder: and indeed it muſt be a chance-medley if the cure be ſtruck out without knowing the foundation of the malady.

In this as well as in moſt other caſes, there is nothing more plain than that the firſt ſpring of this diſorder riſes from an over-heating of the blood, and then a ſudden cool, which cauſes a ſtagnation of the fluids while they are all afloat, and mixed with the inflamed fleſhy part of the body. For it is to be obſerved, when a horſe, or any animal is hot, the fleſh ſwells, and is larger than when in a temperate heat; this is owing to the blood and other fluids of the body being melted or thinned, then raiſed into a fermentation and mixed with the fleſh, which expands and opens the pores of that and the skin; this admits air among the fluids and fleſhy part of the body, and then cooling ſuddenly, it thickens and is ſtagnated in this ſituation. But it cannot reſt long there, for the air corrupts and turns it into a thin matter, which without entering into the tubes, arteries, and blood-veſſels, (for it cannot, they being incloſed with a tough skin) drains off through the pores or grain of the fleſh, by the moſt perpendicular direction, to the extreme part of the horſe, which is to the very hoof; and when it comes there can go no farther, but putrefies, and wounds the skin till it makes its paſſage; and when once a current is fixed, all the foul floating matter belonging to the fleſhy part of the body diſcharges itſelf that way.

There are two queſtions that I might naturally be asked, viz. Why is a horſe when taken from graſs in autumn, tho' not much heated, apt to greaſe? and, Why is a fleſhy-legged horſe more ſubject to this diſorder than a lathy-legged one? This is very eaſily accounted for.

As to the firſt, we are to conſider that graſs in autumn is a ſoft, frothy, unwholeſome feeding for a horſe; and the reaſon is this, the graſs thrown up by the Michaelmas ſpring, is imbibed with, and only conſiſts of a volatile, ſoft, watery acid, for the part of the graſs which is of a firm texture, and loaded with juices of a ſolid, nitrous ſpirit, is the ſpindle, which grows out of the root in a perpendicular manner, and conſiſts of a tube with ſeveral joints, and on which grows the ſeed. But none of this ſort grows in ediſh, or after-graſs: what grows at the latter end of the year, is only leaves of little real ſubſtance; ſo what fleſh they lie on, is of a ſoft, looſe, watery, open, porous nature, and this proves itſelf to us every time we ride a horſe at this time of the year fed upon it; for a ſmall motion or action will cauſe him to ſweat immoderately; what he throws off thus, is no other than a volatile air that he took in by the ſoft feeding, and which is mixed through the fleſhy part of the body that keeps open, looſe, and porous.

If you give ſuch a horſe much corn at taking him firſt up, it will heat his body, and cauſe an inflammation in his blood, and floating matter, which corrupts, and turns it into a digeſtive thin ſubſtance, which makes its paſſage, as in the former caſe, by the perpendicular direction. As to the fleſhy-legged horſe, this may be deemed as an attraction to divert the digeſted foul matter that way; for having ſuch a load of fleſh about his legs, it works and ſhakes every time he takes them up and ſets them down; and ſuch a friction keeps them continually in a heat, which inflames the parts, and theſe communicate their heat to the thighs, by which it attracts the attention of the fluids that way; ſo that, in fact, the fleſhy leg is a continual ſeat for ſuch inflamed matter.

To prevent the greaſe when a horſe is taken from graſs.

WHEN you take a horſe into the ſtable from graſs, if your ſituation will admit, for the firſt week, take him in at days, and give him a feed of corn, and turn him out at nights. The ſecond week, take him in for altogether, bleed him the firſt day, and only give him about two quarts of oats, morning and evening, for a week; every day give him a gentle exerciſe, ſo as to raiſe him into a moderate ſweat; before he cools, give him ſome ſcalded bran, and walk him a little after it: add to his feed of corn by degrees, thus continue till you find that he will bear exerciſe without ſweating, which is a token that you have wrought off the looſe frothy feeding, and brought his fleſh to a firm texture.

To prevent a hunter or over-heated horſe from greaſe.

WHEN a horſe is very hot after a chace or hard riding, when you alight, order that he be well rubbed, then walked ſharply about with a cloth over him, till a peck of ſcalded bran is got ready; then let him eat it, and walk him for half an hour after briskly, keeping him covered; as ſoon as he is dry, curry him well, and hand-rub his legs; keep him warm with cloths, and give him warm water with a handful of oat-meal in it, to colour it white: if you have a cordial-ball, give it him; no man that has a horſe ought to be without theſe balls, as it is much better to prevent a diſorder than to cure it.

To cure the greaſe in horſes, be the horſe-legs ever ſo bad.

YOU ſee in the above ſheets, from what the greaſe proceeds, and knowing the diſeaſe is half the cure.

When your horſe has broke out in his legs, give him a cordial-ball in the morning, and after it a good bruſhing gallop, ſo as to raiſe him into a gentle ſweat; have a peck of ſcalded bran ready againſt he comes in; let him eat it, and all the time he is eating it, let him be well rubbed with a wiſp; after he has eat the bran, walk or trot him gently for an hour. Againſt he comes in have a poultis ready made of old butter-milk and oat-meal, boiled together, in the nature of an haſty pudding; ſpread it thick upon a cloth, then ſprinkle over it a little oil of turpentine; bind it well about his legs, ſo that it cannot ſhake off; ſerve the fore-legs the ſame way, if they be broke out. At night give him another feed of bran; the next morning ſerve him as you did the firſt; give him a gallop, a ball, and a maſh of bran, and put another poultis; and the third morning likewiſe. But the third morning, when you lay on the poultis, let it be larger than common, bind it on well, and never take it off, or the horſe out of the ſtable, till his legs are quite healed and well, which will be in about four or five days, be the greaſe ever ſo bad. This is the moſt excellent ſure cure in the world. I never ſaw it fail; and I have bought horſes for a trifle, that have been judged incurable, and cured them by it.

The melted foul matter is diſcharged three ways; firſt by ſweat, but this muſt be moderate: ſecondly, by the bran: thirdly by the poultis. For this poultis ſucks or draws all the foul matter or ſtagnated fluids out of all the adjoining parts; for theſe muſt have vent that way, there is no turning them back, or diverting their courſe to any other point.

The poultis renders the ſore as white as curd, and very ſupple. The reaſon of letting the laſt poultis lie on ſo long, is, that it may dry to powder, in order to heal the ſore. The poultis, while wet, ſucks and cleans the ſore from all corruption, and nothing will heal as long as any remains there; but it being diſcharged, the powder is ſure to heal the ſore. I have often cured horſes, that were not very bad, with one poultis, laying it on, and not taking it off till the horſe was well. You had better not give too much corn while under cure, but give plenty of warm water and ſcalded bran.

A purging clyſter for an inflammation of the lungs.

TAKE ſena, and marſh-mallows, each two ounces, fennil and bay-berries, each one ounce; boil in five pints of water to two quarts; pour off the clear, and add four ounces of purging ſalts, three of the ſyrrup of buckthorn, and half a pint of lineſeed oil; give him the clyſter in a clyſter-pipe, let it be as warm as new milk; if the malady do not abate, repeat it the ſecond day.

It is neceſſary the horſe ſhould have a great deal of blood taken from him; the firſt day two quarts, the ſecond day two quarts; and ſo continue every day drawing as much as you find the horſe can bear to loſe. The above clyſter needs only be uſed when the horſe's caſe is deſperate; neither can all the drugs be eaſily got in country-towns; therefore the following clyſter may anſwer nearly as well, and in many caſes better and ſafer, except the fever and inflammation be very high, as above obſerved.

Take a pound of treacle, boil it in a quart of milk till it curdles; clear off the curds, and add to the whey half a pound of honey, and a pint of linſeed-oil; give it to the horſe blood-warm, one part in at the mouth, and the other clyſter-wiſe: by this it will diſperſe all through his bowels, incorporate and mix with his dung, which in ſome parts may be dry, hard, and baked, occaſioned by the heat of his diſorder; but this will effectually remove any obſtruction in this caſe, by evacuation, and alſo throw him into a ſweat: theſe together ſeldom fail of a cure, if the horſe be curable. The doſe may be repeated as often as you pleaſe, as it can do no harm, and is very nouriſhing. It will ſtill be better to add half an ounce of the oil of aniſeed; or, if it cannot be got, bruiſe an ounce of aniſeeds in a mortar, and boil it along with the milk and treacle.

There are very few inward diſorders a horſe or cow (for it is good for both) is afflicted with, that this ſimple medicine will not remove, but the beaſt muſt be kept very warm; it is alſo neceſſary that a ſmall hand ſhould be greaſed and put up the fundament, to draw out all the hard dung within reach.

The horſe's drink muſt be warm white water; that is, a handful of oat-meal put into a tub of warm water. His diet muſt be ſcalded bran, boiled oats, and every ſecond day a meſh of malt; give him a little ſweet hay out of your hand every now and then till he begins to recover.

Bracken's Cordial-ball.

THESE balls, taken by way of a cooling gentle purge, to prevent ſickneſs, keep a horſe temperate in his body, and give him a free reſpiration; they are much uſed to running horſes and hunters.

I have uſed it many years with great ſucceſs, and believe it to be both an excellent preſervative and reſtorative: however, it is too expenſive for a farmer to uſe it: commonly I found it ſo myſelf; therefore many years ago I omitted two of the moſt expenſive articles, and in their place added two of my own chuſing, which I found to anſwer full as well, and for many years have uſed none elſe, except for a fine delicate horſe by chance. I ſhall give Bracken's firſt, and then my own, viz.

Take aniſeeds, caraway-ſeeds, and greater cardamoms finely powdered, of each one ounce, flour of brimſtone two ounces, turmeric in fine powder one ounce and a half, ſaffron two drams, Spaniſh juice diſſolved in water two ounces, oil of aniſeeds half an ounce. liquorice-powder one ounce and a half, wheat-flour a ſufficient quantity to make it into a ſtiff paſte; beat all the ingredients well in a mortar together; give the horſe a ball at a time about the ſize of a pigeon's egg.

Bracken's cordial-ball, curtailed in expence by the practiſer.

TAKE aniſeeds two ounces, caraway-ſeeds and greater cardamom ſeeds one ounce each; theſe muſt be finely powdered in a mortar; then take half a pound of treacle, and half a pint of milk, boil them till it parts in curds and whey, then take off the curd, and put the above powdered ſeeds into the whey, with two ounces of Spaniſh juice, and boil them till they are reduced to a thickiſh ſubſtance; then put them into a mortar, and add flour of brimſtone two ounces, turmeric, in fine powder one ounce and a half, liquorice powder one ounce and an half, half an ounce of balſam of ſulphur; bruiſe and mix all well in a mortar, and add as much flour of malt (for wheat-flour is binding, therefore a contradiction in nature) as will make the ingredients into a ſtiff paſte, and give the horſe about the ſize of a pigeon's egg in a ball, or elſe diſſolved in a pint of warm ale, by way of a cordial-drink.

There can be nothing better than this given to a broken-winded horſe to give him eaſe; but there is no cure for this malady.

To kill worms in horſes.

GIVE the horſe (troubled with worms or grubs) three mornings together, a pint of ſtrong rue-tea; in it bruiſe and ſqueeze the juice of three or four heads of garlick; diſſolve in it a handful of ſalt.

To cure a ſore of any ſort.

TAKE one ounce of Venice turpentine; mix with it the white of three eggs, beat them up together till they be in a white froth: uſe it by the way of a tent or plaiſter. If it be a green ſore, firſt waſh it with oil of turpentine, and then lay this on: if it be an old ſore, waſh it with alum-whey; and if it contain dead fleſh, cut it out as near as you can, and lay ſome green verdigriſe on it, under the plaiſter; continue to do this, till the dead fleſh is eaten off; and when that is gone, there is no doubt but this ſalve will cure any ſore: if it be in ſummer-time, and that your horſe run among flies, rub over and round the plaiſter a little train-oil, and the flies will not come near it. There is one obſervation you muſt always bear in mind, and that is, to give vent to your ſore at the bottom-part, for all matter works downwards, and it is impoſſible to cure a ſore as long as either matter or dead fleſh is there: indeed if you keep a ſore clear of theſe incumbrances, it will heal itſelf, and there is no better thing for that than waſhing it with alum-whey.

To cure the mange or ſcab.

TAke two pounds of tobacco-duſt, and boil it in one gallon of old chamberlee; bruiſe very fine half a pound of ſtone brimſtone, and put it into the liquor; let it lie a day before it is uſed; waſh the horſe all over, but firſt bleed him well, and either give him two or three cordial-balls, or ſome ſulphur mixed up in new milk and ſcalded bran.

To cure a ſtrain in the ſhoulder, or a clap in the back-ſinews.

AS ſoon as you perceive the horſe ſtrained, immediately bleed him in the plate-vein; then take oil of turpentine, oil of ſpike, ſpirits of wine, and the ointment of marſhmallows, each one ounce; mix them together over a gentle fire, then hold a hot bar of iron as near the ſhoulder or fetlock as the horſe can bear it, and rub the oils well in. Tie the horſe ſhort to the rack, as it will ſmart him for about half an hour. If it be a ſtrain, or, what is all one, a clap in the back-ſinews, bleed in the fetlock-vein, juſt above the hoof.

CHAP. XLVII.

A few receipts for the cure of black cattle and ſheep, proved by the author.

To cure the red or blend water in a bullock.

TAKE a pice of lean hung beef, dry and bruiſe it to powder; do the like to a red herring; mix theſe powders together; then add to them an ounce of bole-armoniac, and a handful of ſhepherd's purſe, ſtamped very ſmall; mix all theſe together in a quart of the ſtrongeſt, oldeſt ale you can get; this will make two doſes; give it two mornings together lukewarm.

To kill Lice.

BOil a pound of tobacco-duſt in a gallon of ſpring-water, and waſh the beaſt over, or elſe rub them over with train-oil, which will both kill lice, and keep flies from diſturbing the cattle in ſummer.

To ſtop ſcouring in Cattle.

TAKE half a pint of old verjuice, and mix in it an ounce of bole-armoniac reduced to powder; or, for want of this, bruiſe to powder a large handful of kennil-coal, and give it in a quart of new milk three mornings together.

To make a Cow take Bull.

GIve her three mornings together three pints of milk each morning warm from any cow that is a bulling; put into the milk a handful of rye-meal; let the bull go with her, and ſhe will ſoon take him.

To cure the Maw-burn.

TAke two quarts of new butter-milk, half a pound of honey, and a pint of line-ſeed oil: mix all well together, and give it lukewarm one half as a clyſter, and the other down the throat; but rake the beaſt firſt, with a ſmall hand well greaſed.

To kill worms in cattle, prevent ſickneſs, and make them thrive.

TO every gallon of water mix half a ſtone of ſalt, and a quart of tar, and give every beaſt a pint once every fortnight, particularly if you dread any diſorder: if you give your cattle a handful of dry ſalt every ten or fifteen days, it will make them thrive amain.

To dry up milk in cattle you want to feed.

TAKE an ounce of powdered alum, boil it in two quarts of milk till it turns to whey; then take a large handful of ſage, and boil it in the whey till you reduce it to one quart; rub her udder with a little of it, and give her the reſt by way of drink: milk her clean before you give it her, and as you ſee need requires, repeat it: Draw a little milk from her every ſecond or third day, leſt her udder be overcharged.

To prevent the Black-leg, or Black-quarter in Calves or Lambs.

THis diſtemper may be prevented, but cannot be cured when it once ſeizes the creature: the beſt lambs and calves are moſt generally ſubject to it; it is occaſioned by an over-rankneſs of blood, that is, the whole body is overloaded with blood, ſo that the veins cannot diſcharge it quick enough, therefore it breaks or burſts out of the ſmaller blood-veſſels, and diſperſes through the fleſh; then being out of its latitude, it immediately cools, corrupts, and becomes as ſo much dead matter, which corrupts or rots all the fleſh near it, and having no vent to diſcharge itſelf, it is rendered incurable, therefore death quickly enſues, by a mortification.

Every breeder knows the time of year he generally loſes his calves or lambs by this diſtemper, therefore it is the eaſier for him to guard againſt it; we ſee by the nature of the thing, that we have nothing to keep in ſubjection, but the blood; if we can keep it within its natural courſe, then it will preſerve the animal.

If the blood can be kept thin, ſo as to play freely through the veins and arteries, it is not a farthing matter how much there is in the body; but it is when it turns thick and ſlow in its motion that it clogs or ſtops up the avenues; therefore to prevent ſuch erruptions, he muſt take care either to unload the veins by often blooding, or keep the blood thin by exerciſe and medicine; either will do, but both are ſureſt; and as it is not either expenſive or very troubleſome, there is no excuſe for not keeping the cattle alive.

Before the time this malady generally comes on, be prepared with a quantity of rue in proportion to the ſtock of calves or lambs you have to take it.

In the firſt of May or thereabouts make two quarts of very ſtrong rue-tea, for every calf you have, and to every two quarts of tea, put two quarts of ſalt; bottle it up for uſe. Drive up your calves every Monday morning, or once a week and give each calf half a pint, and blood them in the neck-vein once every fortnight; give your lambs each half the quantity every week, and blood them in the tail every fortnight; by this precaution, you, in all probability, will loſe neither lamb nor calf: though I call them lambs or calves, they are generally a year old before they take this diſorder.

To kill lice or maggots in ſheep, and cure the ſcab.

IN every two quarts of water, boil a quarter of a pound of tobacco, in this diſſolve half an ounce of corroſive ſublimate, add a gill of the ſpirit of turpentine, and a gill of train-oil; bottle it up for uſe.

To kill Warbles.

PRick them with a pin, and rub them with the ſpirit of turpentine; ſalt and water will do ſometimes, if they be ripe, but the former is more effectual.

A ſure method to prevent ſheep from the rot.

IN the ſeaſon, when herbs are in their prime, take an equal quantity of rue and wormwood; make them into a ſtrong tea; into every quart of tea put two quarts of ſalt, and one ounce of the balſam of ſulphur; keep it bottled up for uſe, and give each ſheep two large table-ſpoonfuls for a doſe, three times, or, at leaſt twice a week all ſummer; a ſpoonful of dry ſalt three times a week is another preventive, but the former is more to be depended upon. I have tried it more than once, and I know a gentleman that ſaved all his flock by it, when others on the ſame common moſtly died.

To prevent the fly from diſturbing ſheep when new ſhorn, create the growth in wool, prevent maggots or lice from breeding, and prevent ſickneſs, pelt-rot, or ſcab, &c. &c. and from whence theſe diſorders proceed.

THere is nothing more plain than that all theſe diſorders are occaſioned either by neglect or miſmanagement; and I am confident, that if the following receipt be kept up to, (which is both cheap and eaſily executed, not one ſheep in a hundred would die, or even fall into any of the above diſorders; this I know to be fact, both by reaſon and many repeated trials.

What affects or diſorders the animal ſpirits in one form of body, will in another: what will affect the human ſpecies, will a brute-beaſt, in either a greater or leſs degree. If we conſider the nature or ſituation of a ſheep in the ſhearing-ſeaſon, it will eaſily digeſt this argument to us. It is alſo very evident, that moſt diſorders which affect the animal ſpirits, come on at firſt by cold; that ſuch colds are moſt liable to ſeize the body when it is in the greateſt heat for then the skin (which is intended by nature as a defence againſt colds from entering into the fluids and open fleſhy parts) is, in time of any great heat, extended or ſtretched beyond its natural or uſual bounds, by the ſwelling of the fleſh, and all other inflamed parts within. Therefore this ſurface or skin, as well as all other parts of the body, is as open and porous as a ſpunge, which admits the external air; and in this, as well as in all others, the greater the heat, the greater the attraction And this air being admitted, and mixed with the inflamed frothy fluids, as ſoon as the motion of the body abates, ſo does that of the fluids, whereupon the froth ſettles, the parts ſhrink, the skin cloſes to its uſual ſtate, and within confines the attracted air; which, being mixed with the blood or fluid matter, cools, thickens, and ſtops the uſual currency, ſo conſequently diſorders the whole machinery till it is digeſted: and though in ſome caſes, when it is only ſlightly affected, it may work off imperceptibly, perhaps externally, by a boil, warble, or ſome ſmall breaking out; or internally, by gripes, or purging; but if the fluids be more heavily loaded or diſordered, then it muſt have ſo much the more forcible remedy to eradicate it; for it is impoſſible for any living body to be in health or good frame, as long as any dead or inactive matter lodges within, contrary to its nature.

And what I have ſaid, together with other concurring circumſtances, may prove that all or moſt colds are taken up through the skin alone, and not through any open paſſages for taking in or diſcharging out any ſubſtance of nouriſhment.

If we be uſed to lie in a night-cap every night, but ſuddenly caſt it off, do not we catch cold in our head? The like may be ſaid of caſting a neckcloth, we take a ſore throat: if a coat or waiſtcoat, we feel the effects of it in our bones (as is commonly expreſſed): if we be in a great heat, and run immediately to bathe in a cold bath, would it not greatly endanger our lives? I believe a little accident that once befel me, has ſince ſaved me many ſheep, or at leaſt diſorders in them.

When a young man, I was remarkably active as to running, leaping, and all ſuch like exerciſe; being at a ſheep-waſhing one very hot day, a trifling wager aroſe, that I could not catch a ſheep by fair running; in ſhort I ran to ſuch a degree, that I raiſed myſelf into a great heat; the ſheep were alſo panting for air under their heavy fleeces: near hand were ſome women waſhing. I began to play with the girls, and perhaps handled them a little indelicately; one of them preſented me with a diſh of cold water, which hit me on the back; and being in my ſhirt, it immediately wet my skin; inſtantly, almoſt as if I had been ſhot, a pain aroſe as far as the water ſpread over my back, ſo that I could ſcarce ſtir: I put on a dry ſhirt, and went to bed, but ſtill the pain continued, as if my back was broke. As it was natural for me to philoſophize upon any uncommon event, my thoughts turned upon this.

It was quite clear to me, that my pain aroſe from the cold water; that it took this ſudden effect, becauſe I was hot; that if I had happened to bathe in that heat, in all likelihood it would have endangered my life.

My next thoughts turned upon the ſheep, that it might perhaps damage them to be put into the water in their preſent heat; as ſoon as this occurred, I immediately ordered to ſtop waſhing: they had then near half done; I ordered notes to be taken of as many as were waſhed, and the conſequence was, that a great many of theſe died of the pelt-rot, or one diſorder or other; and the revivers were moſtly broken-coated; their wool came off like that of rotten ſheep.

I ſtill continued in great pain, and could ſcarce turn myſelf in the bed: a doctor was ſent for; he blooded, and gave me ſeveral things inwardly, but all availed nothing; the pain ſtill continued, and I was very reſtleſs under it; upon ſeveral caſts about in my mind, I was at laſt reſolved to be my own doctor, and, if poſſible, to drive it out the way it came in. Upon this I ordered a pound of treacle to be made into whey, as ſtrong as could be made; while this was doing, I with great difficulty got up, put on my great coat, drunk a glaſs of rum and walked out; I went into a meadow-field, at the back of the garden, where there was a thick hedge, where I thought no one could ſee me. I there betook myſelf to running, and ſo continued, till I raiſed myſelf into a breathing ſweat. I thought if any one had ſeen me, they certainly would think I was mad; therefore came in as demurely as if nothing had happened; I ſtripped myſelf, went to bed, drank my treacle-whey, and ſweat very ſeverely; in the time of my ſweating, I ordered a warming-pan of hot coals to be held at my back at the out ſide of the bed-cloaths; all proceedings operated ſo well, that by the time the ſweat was over, the pain in a manner left me, nothing remained but a ſoreneſs in my back. In ſhort, I have cured myſelf ſince of ſtitchesand pains ſeveral times, by much the ſame method.

I would not give a ruſh for any doctor, whether he be for the human or brute creation, that could not reaſon well, and ſhew where the grievance lay, and what brought it on: it is only ſuch knowledge which can open his ideas to point out a cure: if he be ignorant in this, I ſhould ſuſpect him of not being overburdened with ſterling ſenſe, and every thing he did was hap at a venture, therefore no more than an equal chance whether it hit or miſſed.

I hope my reader will excuſe me for comparing a human creature to a brute; but I only do it ſo far as relates to the machinery of the body (the ſoul has nothing to do with fleſh and blood) and this in the two creations is nearly alike: I am certain what will diſorder the one, will affect the other in ſome degree, according to the ſtrength and conſtitution; and I am equally clear, that what will cure a man, will cure a horſe, if their diſorder ſpring from the ſame cauſe, and due care be had as to the proportion; neither is the diſtinction of the proportion applicable only to the two names of brute and human ſpecies, but partly to the ſize of the two bodies; for if the body be large, the veins, arteries blood-veſſels, &c. &c. require a doſe in proportion, to circulate therethro' in order to an equal diſcharge: a big man will require more than a ſmall one, and ſo will a large horſe than a galloway.

I am perfectly ſure that a man requires more ſterling wit to be a good doctor for a brute than for the human ſpecies, becauſe we can tell where our ailment lies, how it affects us, and how we came by it. Theſe are queſtions generally firſt asked, and, being reſolved, are great helps to the doctor; but a dumb creature can only make ſigns at beſt in an imperfect manner, therefore it requires great penetration of judgment to find out the cauſe or complaint; indeed the beaſt keeper may ſometimes help out, by telling what hardſhips or miſchances the creatures meet with. Yet theſe are all ſhort of ſpeech from the afflicted; which ſhews plainly, that a doctor for the brute-creation ought to be a man of real ſenſe as well as learning, and alſo to underſtand a good deal of natural philoſophy.

Upon looking back, I find this ſort of a lecture has ſwelled my diſcourſe larger than I at firſt expected; but it will not be amiſs, perhaps, for my reader to bear it in mind for other ſorts of cattle as well as ſheep, ſince all ſound reaſons hang by one

The month of June is the moſt proper for ſhearing ſheep; and in this month the weather is generally very hot; the ſheep alſo are loaded with a very heavy coat. Reaſon will tell us, that if they were to run in winter, it would not heat them ſo much as to walk now; nay, in ſhort if they were to run with it off in a hot day, it would not heat them ſo much as to walk with it on in the ſame day.

It is principally owing to waſhing and ſhearing that ſo many maladies in ſheep ariſe, particularly thoſe of pelt-rot, ſcab, hide-bound, and ſurfeits, or broken coats, &c. &c.

And the reaſon is plain and natural; for let a man be ever ſo careful in driving them to the fold, they muſt be heated when put into the fold. For, by ſtanding ſo cloſe together, they will heat one another; and again by running among them to catch them, adds ſtill to the evil;

then, in this heat, they are put into the coldeſt of water, becauſe it is generally running water; popping them into it in ſuch a ſituation, is almoſt as reverſe to their nature, as for a fiſh to be out of water. For they are environed by the thinneſt skin almoſt of any other animal, ſo certainly muſt be the moſt liable to ſuffer in their conſtitution, as appears by the aforeſaid reaſons. And now being waſhed, they are expoſed in another extreme; for if their coats were thin, ſhort, and open, like that of a dog, or a horſe hair, it might ſoon dry; but, inſtead of that, they ſtand during the night with a thick, heavy wet coat of wool about them. Which may be compared to a man lying in wet ſheets, which has coſt many a one their lives. It may be anſwered, that ſheep are often wet by rain, ſo I grant; but very ſeldom to the skin. For wool is of ſuch a nature, that it ſhoots off rain ſurprizingly.

I have examined a ſheep in a very rainy day, but I never yet ſaw the wool wet to the bottom, if it was of any length, and if it was not it would not affect them ſo much, becauſe the fluids of the body are in a temperate heat; add to this they are generally in motion by walking to feed, and the rain comes on gradually. All theſe conſiderations ſhew, that waſhing ſheep is attended with two extremes of heat and cold, that they follow cloſely one upon another, while the fat or fluids are in a manner melted, therefore muſt certainly hurt their conſtitution or frame of body in one degree or other.

In a few days after this, they go thro' another ſudden change, which is that of loſing their coats. They are again heated, by driving, ſtanding cloſe together, catching, &c. And now they are ſtripped naked to ſtand in buff all the night following; which is juſt the ſame as if a man were to ſtrip off his uſual apparel, and go naked; nay, it is rather worſe, becauſe he can change an uneaſy hot ſituation by looſing his buttons, or ſometimes thinning his cloaths, by degrees, as the weather grows hotter; but the warm fleece grows inſenſibly upon the ſheep, and they never change it but once in a year, and that ſuddenly, or all at once.

I have ſeveral times known ſheep die the next night or two after they were ſhorn: even laſt ſhearing-time we had it in the news-papers, of a farmer in England who had a good many fat weathers that died the night after ſhearing, becauſe it happened to be colder than common. And will not reaſon tell us, that though the whole flock did not die, yet, as ſome did, it ſhews that the ſtrongeſt in conſtitution muſt ſuffer in ſome degree or other though inſenſibly to our ſight?

Now, all the above conſiderations being added together, prove, even to the weakeſt underſtanding, the ill conſequences attending theſe two operations of waſhing and clipping; and I have often wondered how it was poſſible that ſo eſſential a point (to the health of this uſeful creature) ſhould eſcape the pen of ſo many authors as have wrote upon this fine, profitable, innocent animal. As I am clear from experience, (and if I had none, plain reaſon muſt ſhew) that there is not ſo fatal a diſorder belonging to a ſheep (rot excepted) as ariſes from the conſequences as above. And yet I have before me a work containing four or five hundred pages, which treats of nothing but ſheep, and ſheep-dogs; I know the author to be a ſenſible man, only that he is too long-winded, for he might have ſaid as much to the purpoſe in twenty pages as the whole contains. The feweſt words that a man can expreſs himſelf in, ſo as to be underſtood, the greater is the value of his works, ſo far as relates to phyſic or husbandry. As to hiſtory or novels, they are quite another thing, for the value of them (in a great meaſure) is ſet according to their great bulk.

Though we ſee that the two operations of waſhing and ſhearing are ſo dangerous in the preſent practice thereof, yet it is a work that is abſolutely neceſſary to be done: I ſhall therefore point out methods how they may be performed with little or no damage to the ſheep: and be aſſured, my reader, that it is much better and ſafer to prevent a hundred ſheep from falling into a diſorder, than to cure one already int it, and the ingredients will not coſt above a penny a large ſheep, and a halfpenny a lamb: then, as the phraſe is, who would loſe his hog, for a halfpenny-worth of tar; beſides, the expence and trouble are as nothing in compariſon to the great benefit the wool receives therefrom.

The recipt to make wooll grow.

TO every four quarts of new butter-milk, put one quart of train-oil, one quart of tar, and one of ſtrong tobacco-water, wherein all the ſtrength of half a pound of tobacco duſt has been extracted by boiling: mix the liquid all together, then diſſolve four quarts of ſalt; rub the ſheep all over as ſoon as ſhorn; this will be ſufficient for twenty ſheep or more.

A cordial for ſheep before waſhing or ſhearing.

TO every quart of ale put one quart of Barbadoes tar; and one quart of ſalt; give each ſheep the eigth part of a quart when it is going into the waſhing-pool, and the like doſe when it is ſhorn at the time you are rubbing it. Theſe medicines will effectually prevent any of the aforeſaid diſorders, add growth to the wool, and kill lice, &c.

To make wool grow, preſerve the lamb from the fox, &c.

WHEN your lamb is dropped, as ſoon as it is dry, rub it all over with the butter-milk, tar, train-oil, and ſalt, preparedas directed for grown ſheep, but omit the tobacco-water; this will make its wool grow, prevent lice from breeding, and keep it warm. After this, if you be afraid of the fox, put a ſtreak of tar over its loins, ſhoulders, and round its neck, and a fox will not touch it.

To make Ewes take the Ram.

IF you want early lambs to feed for the butcher, and to feed the ewes in ſummer, your way is to chaſe the ewes about the field to raiſe them in a heat, then give each ewe a table-ſpoonful of brandy; after this, turn the rams to them, and they will take them.

To cure any ſort of wound in a ſheep.

MIX together an equal quantity of tar, turpentine, and freſh butter; apply it plaiſter-wiſe, and it will not fail, but cure any ſore.

To know a ſheep's age.

TILL a ſheep is a year old it is called a lamb, in the ſecond year it has two broad teeth before; in the third year four; in the fourth year ſix: and in the fifth year eight. Thus far we are led on by certainty, but after this it is only gueſs-work; if the teeth be long, yellow, and broken, it is a ſign of great age.

The End of the SECOND VOLUME.